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Safety Precautions

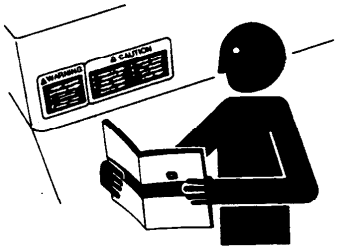
★Recognize Safety Information

This is a safety—alert symbol. When you see this symbol on your machine or in this manual，be alert to the Potential for personal injury.
Follow recommended precautions and safe operating practices.

★Understand Signal Words

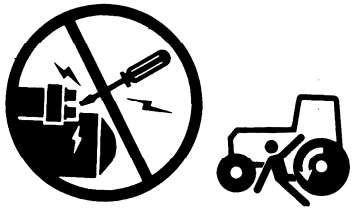
A signal word—DANGER，WARNING，or CAUTION—is used with the safety. alert symbol. DANGER identifies the most serious hazards.
DANGER or WARNING safety signs are located near specific hazards. General precautions are listed on CAUTION safety signs. CAUTION also calls attention to safety messages in this manual.

★Follow Safety instructions



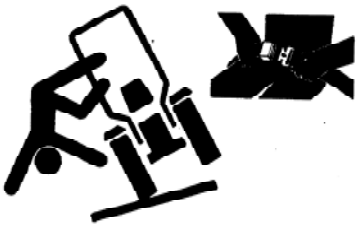
Carefully read all safety messages in this manual and on your machine safety signs. Keep safety signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from your East Wind dealer.
Learn how to operate the machine and how to use controls properly. Do not let anyone operate without Instruction·
Keep your machine in proper working condition.
Unauthorized modifications to the machine may impair the function and/or safety and affect machine life •
If you do not understand any part of this manual and need l assistance，contact your East Wind dealer.

★Prevent Machine Runaway



Avoid possible injury or death from machinery runaway.
Do not start engine by shorting across starter terminals.
Machine will start in gear If normal circuitry is bypassed.
NEVER start engine while standing on ground. Start engine only from operator's seat，with transmission in neutral or park.

Use Seat Belt and Foldable ROPS Properly—
Open Station



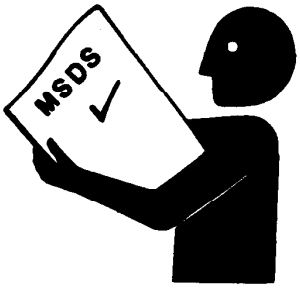
When the ROPS is in the "up" or extended position，ALWAYS use your seat belt to minimize chance of injury from an overturn accident
DO NOT use seat belt when ROPS is folded down.

This tractor is equipped with a foldable Roll-Over Protective Structure(ROPS). The ROPS(A)should be kept in the“up"or extended position(as pictured)with pins(C)retained with quick—lock pins(B), except when it is necessary to fold it for low clearance operations.

A—ROPS
B—Quick-Lock Pins
C——ping

★Handle Chemical Products Safely

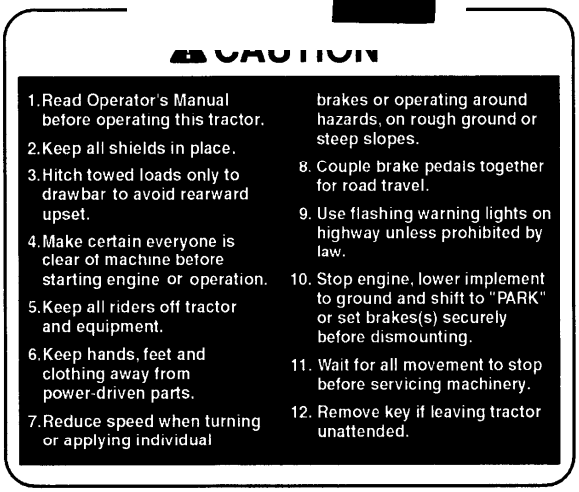
Direct exposure to hazardous chemicals can cause serious injury. Potentially hazardous chemicals used with East Wind equipment include such items as lubricants, coolants, paints, and adhesives.
Before you start any job using a hazardous chemical. you should know exactly what the risks are and how to do the job safely. Then follow procedures and recommended equipment.



★Operate Tractor Safely

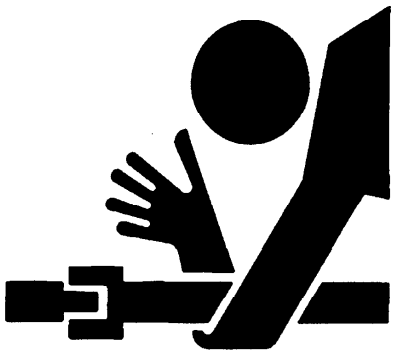
Features designed into your tractor make operation Safer and let it perform a wide variety of jobs. Use your tractor only for specified jobs it was designed to perform: implement carrier, load mover, remote power source, or transport Unit—not a recreational vehicle.
Careless use or misuse can result in unnecessary accidents. Be alert to hazards of tractor operation. Understand causes of accidents and take every precaution to avoid them. Most common accidents are caused from:

- Tractor misuse.
- Improper starting procedures
- Crushing and pinching during hitching
- Collisions with other motor vehicles
- Getting entangled in PTO shafts
- Falls from tractors


CAUTION
1. Read Operator's Manual before operating this tractor.
2. Keep all shields in place.
3. Hitch towed loads only to drawbar to avoid rearward upset.
4. Make certain everyone is clear of machine before starting engine or operation.
5. Keep all riders off tractor and equipment.
6. Keep hands, feet and clothing away from power-driven parts.
7. Reduce speed when turning or applying individual brakes or operating around hazards, on rough ground or steep slopes.
8. Couple brake pedals together for road travel.
9. Use flashing warning lights on highway unless prohibited by law.
10. Stop engine, lower implement to ground and shift to "PARK" or set brakes(s) securely before dismounting.
11. Wait for all movement to stop before servicing machinery.
12. Remove key if leaving tractor unattended.

Avoid accidents by taking the following precautions:

Put transmission in NUETRAL AND APPLY



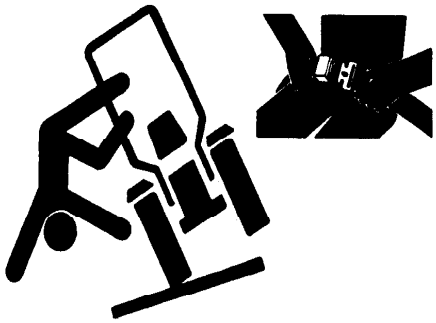
HAND BRAKE before dismounting.
Leaving transmission in gear with engine
stopped will NOT prevent the tractor from moving.
Be sure everyone is clear of tractor and attached
equipment before Starting engine.

Never try to get on or off a moving tractor.

When tractor is left unattended，place
In NUETRAL, Apply hand brake，lower
implements to the ground，stop the engine，
and remove the key.

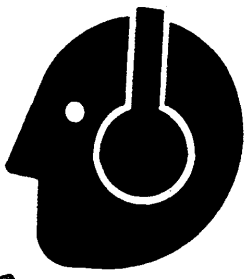
★Use Caution on Hillsides

Always wear seat belt with ROPS in upper position.
Avoid holes，ditches，and obstructions which
cause the tractor to tip，especially on hillsides.
Avoid sharp，uphill turns.
Never drive near the edge of a gully or steep
embankment-it might cave in.
Driving forward out of a ditch or mired condition
or up a steep slope could cause tractor to tip over rearward.
Back out of these situations if possible.
While mechanical front wheel drive greatly increases
traction，it DOES NOT increase stability of the tractor.
With mechanical front wheel drive engaged，the tractor
can climb steeper slopes but it does not become more
stable. When this option is used，extra caution is needed
on slopes. Compared to a 2-wheeI drive，a front. Wheel
drive tractor maintains traction on steeper slopes，increasing
the possibility of a tip over.
Danger of overturn increases greatly with narrow tread
setting，at high speed.
Hitch towed loads only to drawbar. When using a chain,
take up the slack slowly.



★Protect Against Noise

Prolonged exposure to loud noise can cause impairment
or loss of hearing.
Wear a suitable hearing protective device such as
earmuffs or earplugs to protect against objectionable or
uncomfortable loud noises.

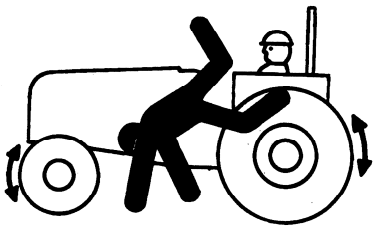


★Shift to Low Gear on Hills

Shift to a low gear before descending a

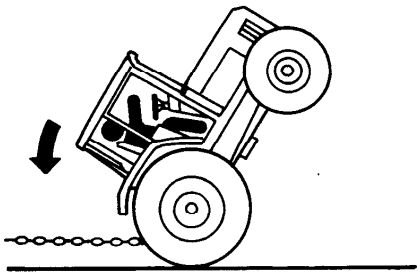
steep hill to improve your control of the tractor with little or no braking. Use engine braking to reduce speed before applying tractor brakes. Run-away tractors often tip over Never coast downhill.
When driving on icy, wet or graveled surfaces, reduce speed and be sure tractor is properly ballasted to avoid skidding and loss of steering control. For best control, engage mechanical front wheel drive(if equipped). Additional ballast may be needed for transporting heavy hitch mounted implements. When implement is raised, drive slowly over rough ground, regardless of how much ballast is used.

★Keep Riders Off Machine



Only allow the operator on the machine. Keep riders off. Riders on machine are subject to injury such as being struck by foreign objects and being thrown off of the machine. Riders also obstruct the operator's view resulting in the machine being operated in an unsafe manner.

★Freeing a Mired Machine



Attempting to free a mired machine can involve safety hazards such as the mired tractor tipping rearward, the towing tractor overturning, and the tow chain or tow bar (Actable is not recommended) failing and recoiling from its stretched condition.
Back your tractor out if it gets mired down in mud. Unhitch any towed implements. Dig mud from behind the rear wheels. Place boards behind the wheels to provide a solid base and try to back out slowly.
If necessary, dig mud from the front of all wheels and drive slowly ahead.
If necessary to tow with another unit, use a tow bar or a long chain(a cable is not recommended). Inspect the chain for flaws. Make sure all parts of towing devices are of adequate size and strong enough to handle the load. Always hitch to the drawbar of the towing unit. Do not hitch to the front push bar attachment point. Before moving, clear the area of people. Apply power smoothly to take up the slack: a sudden pull could snap any towing device causing it to whip or recoil dangerously.

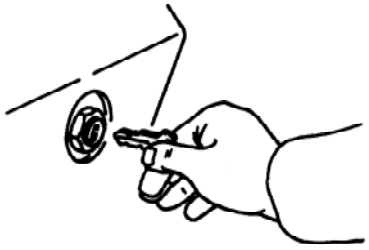
★Avoid High-Pressure Fluids

Escaping fluid under pressure can penetrate the skin

causing serious injury.
Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.
Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.
If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source.

★Park Tractor Safely

To park tractor safely:



- Disengage PTO.
- Lower equipment to the ground.
- Put gear shift lever in NUETRAL.
- Apply hand brake.
- STOP the engine.
- Remove key.

Before you leave the operator's seat, wait for engine and attachment parts to stop moving.

★Handle Fuel Safely-Avoid Fires

Handle fuel with care; it is highly flammable. Do not refuel the machine while smoking or when near open flame or sparks.

Always stop engine before refueling machine. Fill fuel tank outdoors.
Prevent fires by keeping machine clean of accumulated trash, grease, and debris. Always clean up spilled fuel.

★Prepare for Emergencies

Be prepared if a fire starts.
Keep a first aid kit and fire exitinguisher handy.
Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.

★Do Not Use Starting Fluid

DO NOT use starting fluid in tractors equipped with an intake air heater system.
Tractors are equipped with an intake air heater system.

★Wear Protective Clothing

Wear close fitting clothing and safety equipment

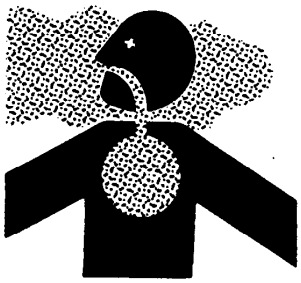
appropriate to the job.
Prolonged exposure to loud noise can cause
Impairment or loss of hearing.
Wear a suitable hearing protective device such as
earmuffs or earplugs to protect against objectionable
or uncomfortable Loud noises.
Operating equipment safely requires the full attention of
the operator. Do not wear radio or music headphones
while operating machine. .

★Work In Ventilated Area

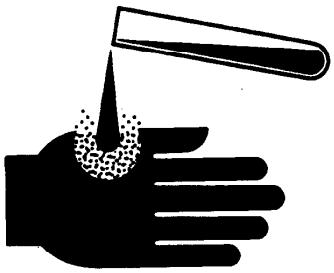
Engine exhaust fumes can cause sickness or death. If it is necessary to run an engine in an enclosed area，remove the exhaust fumes from the area with an exhaust pipe extension.
If you do not have an exhaust pipe extension，open the doors and get outside air into the area.

★Avoid Contact with Pesticides

Enclosed cab does not protect against inhaling harmful pesticides. If pesticide use instructions require respiratory protection，wear an appropriate respirator inside the cab.
Before leaving the cab，wear personal protective equipment as required by the pesticide use instructions.



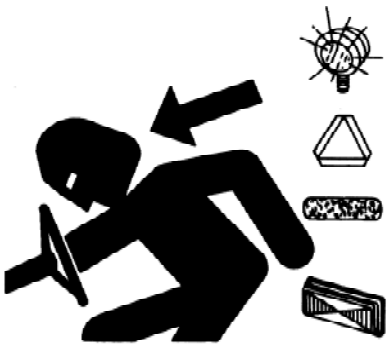
When re-entering the cab，remove protective equipment and store either outside the cab in a closed box or some other type of sealable container or inside the cab in a pesticide resistant container，such as a plastic bag.
Clean your shoes or boots to remove soil or other contaminated particles prior to entering the cab.



★Stay Clear of Rotating Drivelines

Entanglement in rotating driveline can cause serious Injury or death.
Keep tractor master shield and driveline shields in place at all times. Make sure rotating shields turn freely.
Wear close fitting clothing. Stop the engine and be sure PTO driveline is stopped before making adjustments，connections，or cleaning out PTO driven equipment..

★Use Safety Lights and Devices



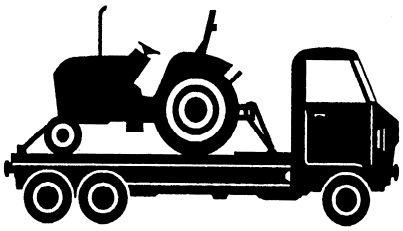
Prevent collisions between other road users，slow moving tractors with attachments or towed equipment，and self-propelled machines on public roads．Frequently check for traffic from the rear，especially in turns，and use turn signal lights．
Use headlights，flashing warning lights，and turn Signals day and night．Follow local regulations for Equipment lighting and marking．Keep lighting and marking visible，clean，and in good working order．Replace or repair lighting and marking that has been damaged or lost．An implement safety lighting kit is Available from your East Wind dealer．

★Use a Safety Chain

A safety chain will help control drawn equipment should it accidentally separate from the drawbar．

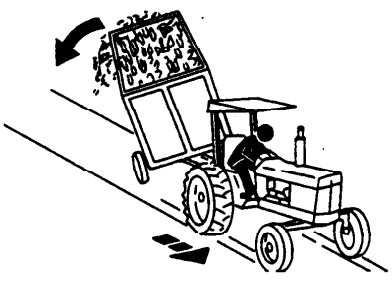
Using the appropriate adapter parts，attach the chain to the tractor drawbar support or other specified anchor location．Provide only enough slack in the chain to permit turning．
See your East Wind dealer for a chain with a strength rating equal to or greater than the gross weight of the towed machine．Do not use safety chain for towing．

★Safely Transporting the Tractor



A disabled tractor is best transported on a flatbed carrier．Use chains to secure the tractor to the carrier．
Never tow a tractor at a speed greater than 16 km/h(10mph)．An operator must steer and brake the tractor under tow

★Tow Loads Safely



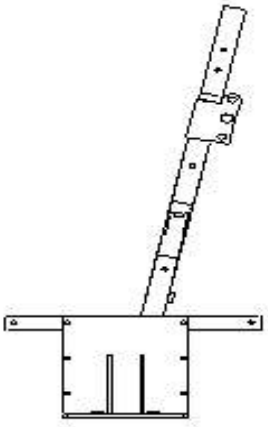
Stopping distance increases with speed and weight of towed loads，and on slopes．Towed loads with or without brakes that are too heavy for the tractor or are towed too fast can cause loss of control．Consider the total weight of the equipment and its load．
Observe these recommended maximum road speeds，or local speed limits which may be lower：

- If towed equipment does not have brakes，do not travel more than 20 km／h(12.5 mph．) and do not tow loads more

than 1.5 times the tractor weight.

- If towed equipment has brakes，do not travel more than 30 km／h(25 mph)and do not tow loads more than 3 times the tractor weight.

Ensure the load does not exceed the recommended weight ratio. Add ballast to recommended maximum for tractor，lighten the load，or get a heavier towing unit. The tractor must be heavy and powerful enough with adequate braking power for the towed load. Use additional caution when towing loads under adverse surface conditions，when turning，and on inclines.



★Keep ROPS Installed Properly

Make certain all parts are reinstalled correctly if the roll-over protective structure(ROPS)is loosened or removed for any reason. Tighten mounting bolts to proper torque.

The protection offered by ROPS will be impaired if ROPS is subjected to structural damage，is involved in an overturn incident，or is in any way altered by welding，bending，drilling，or cutting. A damaged ROPS should be replaced，not reused.

★Practice Safe Maintenance

Understand service procedure before doing work. Keep area clean and dry.

Never lubricate，service，or adjust machine while it is moving. Keep hands，feet，and clothing from power-driven parts. Disengage all power and operate controls to relieve pressure. Lower equipment to the ground. Stop the engine. Remove the key. Allow machine to cool.

Securely support any machine elements that must be raised for service work.

Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any buildup of grease，oil，or debris.

On self-propelled equipment，disconnect battery ground Cable (—) before making adjustments on electrical systems or welding on machine.

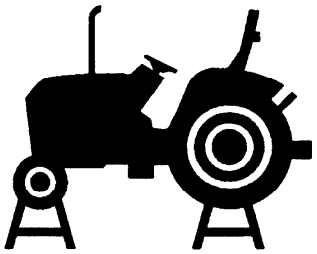
On towed implements，disconnect wiring harnesses from tractor before servicing electrical system components or welding on machine.

★Service Cooling System Safely

Explosive release of fluids from pressurized cooling system can cause serious burns.

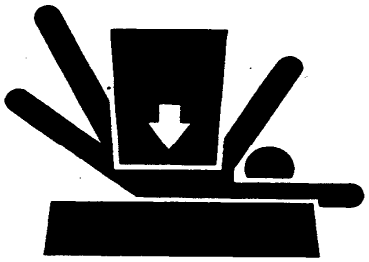
Add make-up coolant through the external container，not directly to the radiator.
If radiator cap must be removed，do not remove when engine is hot. Shut engine off and wait until cap is cool enough to touch with bare hands. Slowly loosen cap to first stop to relieve pressure before removing completely.

★Service Tractor Safely



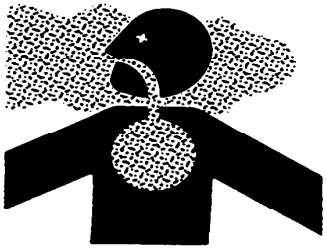
Do not service the tractor while it is in motion or while the engine is running.
When servicing front-wheel-drive-equipped tractor with rear wheels supported off ground and rotating wheels by engine power，always support front wheels in a similar manner. Engaging front-wheel drive will pull rear wheels off support if front wheels are not raised.
Tighten wheel hardware to correct torque as specified in Wheels，Tires and Tread section. Torque at intervals shown in Break-In Period and Lubrication and Maintenance sections，to ensure that wheel hardware does not loosen.
Reinstall protective covers removed during service.

★Support Machine Properly



Always lower the attachment or implement to the ground before you work on the machine. If you must work on a lifted machine or attachment，securely support the machine or attachment. If left in a raised position，hydraulically supported devices can settle or leak down.
Do not support the machine on cinder blocks，hollow tiles，or props that may crumble under continuous load. Do not work under a machine that is supported solely by a jack.
Follow recommended procedures in this manual.
When implements or attachments are used with a tractor，always follow safety precautions listed in the implement operator's manual.

★Remove Paint Before Welding or Heating



Avoid potentially toxic fumes and dust.
Hazardous fumes can be generated when paint is heated by welding，soldering，or using a torch.
Do all work outside or in a well ventilated area. Dispose of paint and solvent properly.
Remove paint before welding or heating:
• lf you sand or grind paint，avoid breathing the dust.

Wear an approved respirator.

- lf you use solvent or paint stripper，remove stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.

★Avoid Heating Near Pressurized Fluid Lines

Flammable spray can be generated by heating near pressurized fluid lines，resulting in severe burns to yourself and bystanders. Do not heat by welding，soldering，or using a torch near pressurized fluid lines or other flammable materials. Pressurized lines can be accidentally cut when heat goes beyond the Immediate flame area.

★Store Attachments Safely

Stored attachments such as dual wheels，cage wheels，and loaders can fall and cause serious injury or death. Securely store attachments and implements to prevent falling. Keep playing children and bystanders away from storage area.

★Prevent Acid Burns

Sulfuric acid in battery electrolyte is poisonous. It is strong enough to burn skin，eat holes in clothing，and cause blindness if splashed into eyes.

Avoid the hazard by：

1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.
5. Use proper jump start procedure.

If you spill acid on yourself：

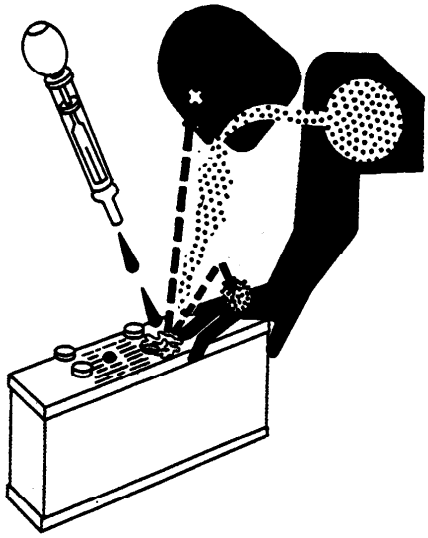
1.Flush your skin with water.

2. Apply baking soda or lime to help neutralize the acid.
3. Flush your eyes with water for 15—30 minutes.

Get medical attention immediately.

If acid is swallowed：

1. Do not induce vomiting.
2. Drink large amounts of water or milk，but do not exceed 2 L(2 quarts).
3. Get medical attention immediately.



★Service Tires Safely

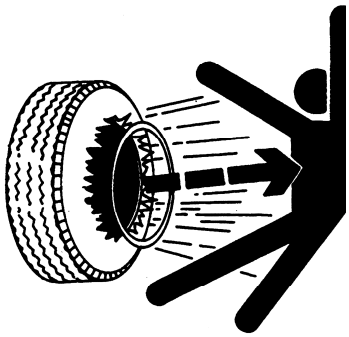
Explosive separation of a tire and rim parts can cause serious injury or death.

Do not attempt to mount a tire unless you have the proper equipment and experience to perform the job.

Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure. Never weld or heat a wheel and tire assembly. The heat can cause an increase in air pressure resulting in a tire explosion. Welding can structurally weaken or deform the wheel.

When inflating tires, use a clip—on chuck and extension hose long enough to allow you to stand to one side and NOT in front of or over the tire assembly. Use a safety cage if available.

Check wheels for low pressure, cuts, bubbles, damaged rims or missing lug bolts and nuts.



★Dispose of Waste Properly

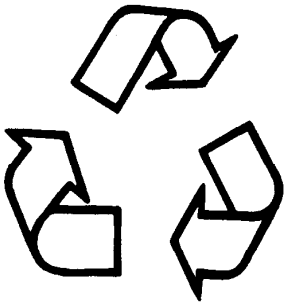
Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with equipment include such items as oil, fuel, coolant, brake fluid, filters, and batteries.

Use leak proof containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them.

Do not pour waste onto the ground, down a drain, or into any water source.

Air conditioning refrigerants escaping into the air can damage the Earth's atmosphere. Government regulations may require a certified air conditioning service center to recover and recycle used air conditioning refrigerants.

Inquire on the proper way to recycle or dispose of waste from your local environmental or recycling center, or from you r East Wind dealer.



Chapter Ⅰ Work Safely Always and Safety Rules

Safety First

This warning sign alerts you about important messages involving your safety.

Read these safety rules attentively and strictly follow suggested precautions to avoid any potential danger and safeguard your health and personal safety.

Important Notices

This tractor has been designed and manufactured specifically and solely for agricultural use.

Any other application will be considered non-compatible with the use envisaged by the manufacturer who, consequently, shall not be held responsible for any damage to things or to the machine itself or for any physical injury to people deriving from the uses other than agricultural ones. Always consider that you would assume the personal responsibility for any consequence associated with the improper use of this tractor.

The respect of the rules for tractor use, maintenance and repair given in this operation manual is an essential element qualifying the correct use of the tractor as envisaged by the Manufacturer.

The tractor must be used, serviced or prepared only by those people who are well trained beforehand in the handling features and safety rules besides being specifically authorized to

operate it.

The users of the tractor are always responsible for the strict observance of general safety and accident prevention rules as well as of the traffic regulations if driving the tractor on public or open roads.

Any un-authorized and arbitrary modification made on the tractor will relieve the manufacturer of all responsibilities for any damage or injury deriving from such modification.

The Manufacturer and all the Organizations associated with its distribution network, including but not limited to national, regional or local distributors, shall decline any and all responsibilities for damages that may derive from the abnormal performance and behavior of those machine parts or components not specifically authorized by the Manufacturer of the tractor, including those used ones for the maintenance and/or repair again though they were fabricated or distributed by the Manufacturer before.

In any case, no warranty of any sort is issued or prescribed for damages deriving from abnormal behavior of those parts and/or components not authorized by the Manufacturer of the tractor.

Caution

Read the Operator's Manual carefully before starting, using, maintaining, refueling or making other service interventions on the tractor.

Comply strictly with the safety regulation and follow the suggested precautions in order to safeguard yourselves.

Maintenance

Use genuine DF Brand parts only.

Failure to do this will:

—Cost you more

—Not result in complete satisfaction.

—Seriously risk improper functioning of the tractor

The tractors were designed with the owner in mind and effort has been made to simplify maintenance.

The purpose of this handbook is to familiarize the operator with the operation and regular servicing of the tractor. Remember that the time spent on maintenance extends the life of your tractor.

Pay particular attention to the instructions covering fuel filtering, air cleaner maintenance and lubrication. Remember that badly filtered fuel results in injection system deterioration and irregular air cleaner maintenance leads to premature engine wear. Please keep in mind that the lube oil should be replaced thoroughly after every 1000 working hours, but at least once a year.

Safety Precautions

General

- Your tractor was designed with safety very much in mind. However, there is no real substitute for caution and attention in preventing accidents. Once an accident has happened, it is too late to think about what you should have done.
- Read this manual carefully before attempting to start, operate, service, refuel or carry on other operating involving you tractor. A few minutes dedicated to reading will save time and trouble later.
- Remember that your tractor was designed and produced exclusively for agricultural use. If the owner of the tractor is to use it for any other purposes, he has to get the prior authorization from the Manufacturer in advance.
- Keep a first aid tool handy.
- Do not work with loose garments that could get caught in moving parts. Check that all rotating parts connected to the power take-off shaft are properly shielded.
- This tractor has to be operated by the people who were trained on the use and maintenance of it, and they also have to be duly authorized to operate it in advance.
- Do not attempt to increase the maximum engine rpm by altering the setting of the fuel injection system.
- Do not alter the pressure relief valve settings of the different hydraulic circuits hydraulic lift and remote control valves.
- Do not operate tractor if you feel unwell or physically unfit, in which case you should stop working.
- Always operate with the cab and rollover safety frame undamaged, complete of all components and correctly installed on the tractor; periodically check fastenings for tightness and frame and structures to make sure they are free from damages consequent on accidental impacts.

Starting the Tractor

- Prior to starting the engine, check that the parking brake is on and transmission and PTO are in neutral.
- Make sure all implements are fully lowered down to ground before starting the engine.
- Make sure, before starting the engine, that all guards, shields and protections are correctly installed on your tractor.
- Do not attempt to start or drive the tractor unless sitting in the operator's seat.
- Always make sure, before starting the tractor in motion, that there are no people or obstacle within range.
- Do not run the engine inside closed premises without adequate ventilation, as exhaust fumes are harmful to health or may even become deadly.

Tractor Operation

- Select the track width setting best suitable to work, always keeping tractor stability in mind.
- Engage clutch gradually: abrupt engagements, particularly if pulling out of a rough area, a ditch or muddy grounds, or driving over a steep gradient, may cause dangerous tractor pitching.

Immediately disengage the clutch if front wheels tend to come off the ground.

- When coasting downhill, keep a transmission gear engaged. Never disengage the clutch and never drive your tractor in neutral.
- With tractor in motion, the operator should be correctly seated on driver's seat.
- Do not get on or off a moving tractor.
- Always press the brake pedal gently.
- Do not corner at high speed.
- Always operate the tractor at a safe speed for the type of ground being worked. When operating on rough ground, use proper caution to assure tractor stability.
- When working on sloping grounds, as for example on hillsides, drive at moderate speed, slow down the tractor particularly when steering.
- Proceed with extreme caution when driving with wheels close to the edge of a ditch or bank.
- Never carry passengers.
- When driving on public roads, be sure to respect traffic rules and regulations.
- Do not override brake and clutch pedals.
- When driving on roads, latch the brake pedals together by using the latch plate. Braking with pedals unlatched may cause side skidding of the tractor. Moreover, avoid overworking the brakes.

Towing and Transport

- To assure tractor stability at work, correctly adjust the towing attachment depending on the towed trailer or drawn implement.
- For your personal safety, trailers should not be towed unless equipped with an independent braking system.
- Always use drawbar and towing equipment to pull heavy loads and avoid in any case hooking or connecting equipment to the 3-point hitch lower links or to the top link, because even in the last case pitching danger subsists.
- When towing, never negotiate bends with a locked differential because you might not be able to steer the tractor.

Using Agricultural Implements and Machinery

- Do not connect implements or machinery requiring a higher power rating than your tractor class.
- Never stand between tractor and implement to facilitate hitching while the tractor is being back up.
- Never actuate the power take-off shaft connected to an operating machine without making sure in advance that no one is within operating range of the same machine.

Stopping the Tractor

- Never leave implements in the raised position while the tractor is stationary, lower down the farm implements before shutting the engine off.
- Before leaving the tractor seat, be sure to move transmission control lever to neutral position, disengage the power take-off shaft, get the hand brake in working status by pulling its handle and shut the engine off at last.

Besides, when leaving tractor unattended, always remove the key from the starter switch.

- When parking, look for level grounds if any, shift into a gear and lock the hand brake. On sloping grounds, besides locking the hand brake, shift into first forward gear if heading uphill or into first reverse gear if heading downhill. For more safety, also use the specific stopping wedge (available upon request). Be sure to do so if parking your tractor with a trailer.

Tractor Maintenance

- Allow engine to cool off sufficiently before removing the radiator cap. After the engine is shut down for some time, slowly turn the cap to release pressures before removing it completely.
- Disconnect the ground cable of storage battery before starting to work on any of the electrical system parts or component.
- Before disconnecting any hydraulic line or hose, make sure the system is pressure-free.
- Hydraulic oil escaping under pressure could cause serious personal injury. Consequently, when searching for or detecting oil leaks, make sure to use adequate safety protections such as shields, goggles and gloves.
- Prior to inspect, clean, adjust or carry on maintenance of the tractor or of any other mounted or connected implement, always make sure that engine is shut down, transmission is in neutral, brake are locked, power take-off is disengaged and all other moving parts are stationary.
- Do not operate on tyres unless suitable tools and the necessary experience are available. Any wrong tire installation may seriously involve your personal safety. If any doubt subsists, call on qualified persons.
- Do not fill up the fuel tank completely when expecting to work in full sunlight as the fuel might expand and escape. In such case, promptly wipe off any fuel stain.
- Tractor fuel may be dangerous. Never refuel while engine is running, or still hot, or near an open flame or when smoking.

Chapter Ⅱ Technical Specifications of the Tractor

2.1 Parameters of the tractor

Tractor Model			DF254G2-6	DF304G2-6	DF354G2-6	DF404G2-6
Overall dimensions (mm)	Length		3350	3350	3453	3453
	Width		1480	1480	1588	1588
	Height	To steering wheel	1524	1540	1500	1581
		To the top of exhaust pipe	2220	2240	2250	2275
Wheel base (mm)			1732	1732	1900	1900
Wheel track (mm)		Front track	1100	1100	1200	1200
		Rear track	1100，1200 1300	1100，1200 1300	1200，1300,1400	1200,1300, 1400
Ground clearance (mm)			290	310	358	405
Construction mass (kg)			1650	1650	1780	1780
Ballast (kg)	Front wheel		120	120	120	120

	Rear wheel (Optional)	112	160	160	160
Rated traction force (N)	In paddy field	4200	4950	5160	4970
	In dry field	6300	6940	7230	7856
Theoretic speed (km/hr)					
Forward	Gear Ⅰ	1.40	1.48	1.35	1.41
	Gear Ⅱ	2.12	2.23	2.03	2.14
	Gear Ⅲ	3.40	3.58	3.26	3.43
	Gear Ⅳ	4.92	5.18	4.73	4.96
	Gear Ⅴ	7.27	7.65	6.98	7.33
	Gear Ⅵ	10.98	11.56	10.54	11.07
	Gear Ⅶ	17.62	18.54	16.92	17.76
	Gear Ⅷ	25.50	26.84	24.49	25.7
Reverse	Gear Ⅰ	1.41	1.49	1.36	1.42
	Gear Ⅱ	2.13	2.25	2.05	2.15
	Gear Ⅲ	3.92	3.60	3.29	3.45
	Gear Ⅳ	4.96	5.22	4.76	5.0
	Gear Ⅴ	7.32	7.71	7.09	7.38
	Gear Ⅵ	11.06	11.64	10.62	11.15
	Gear Ⅶ	17.75	18.68	17.04	17.89
	Gear Ⅷ	25.69	27.03	24.66	25.89

2.2 Main technical specifications of the engine

Tractor Model		254G2-6/304G2-6		354G2-6/404G2-6	
Engine Model		390		490	
Type		Vertical, Water cooling, Four-stroke		Vertical, Water cooling, Four-stroke	
Number of cylinders		3		4	
Cylinder bore（mm）		90		90	
Piston stroke (mm)		95		100	
Piston displacement (L)		1.813		2.543	
Compression ratio		22		22	
Cylinder sleeve type		wet		wet	
Rated power (kW)		18.4	22.4	25.8	29.4
Rated fuel consumption (g/kW. h)		⩽275		⩽275	
Rated speed (rpm)		2400	2400	2400	2400
Max. Torque (N. m)		⩾89	⩾96.8	⩾117.8	⩾134.5
Net weight (kg)		195		200	
Overall dimensions (mm)	Length	587		729	
	Width	492		512	
	Height	650		650	

2.3 Drive system

Tractor Model	DF/254G2-6/304G2-6/354G2-6/404G2-6
Clutch	Linkage type, double-acting clutch
Gearbox	(4+1)×2 , planar 3-shaft for main transmission, epicyclic gearing for Hi-Lo speed range transmission
Main drive	One pair of spiral bevel gears
Differential	Bevel gear
Final transmissions	Spur gear, external gearing

2.4 Traveling and Steering System

Tractor Model		DF254G2-6/304G2-6	DF354G2-6/404G2-6
Front wheel drive axle		Bevel gear drive axle	
Front axle aligning	Front wheel toe-in (mm)	5～10	
	Outward camber	3.5°	
	King pin caster	0°	
	King pin inclination	7.5°	
Steering gear		Full hydraulic steering gear	
Brake		Disc brake	

Traveling wheel				
Specifications of front tyre	6.00-16	6.5-16	6.50-16	7.5-16
Air pressure of front tyre	160～200 kPa (1.6～2 kg/cm^2)			
Specification of front tyre （Optional against order)	28x9-15 （Industrial tyre)		10-16.5 （Industrial tyre)	
Air pressure of front tyre	300～340 kPa(3～3.4 kg/cm^2)			
Specification of front tyre (Optional against order) (Turf tyre)	26×7.5-12-4 (Turf tyre)		7.5-16 (Turf tyre)	
Air pressure of front tyre	160～180 kPa			
Specification of rear tyre	9.5-24	11.2-24	11.2-24	12.4-24
Air pressure of rear tyre	100～150 kPa (1～1.5 kg/cm^2)		100～150 kPa (1～1.5 kg/cm^2)	
Specification of rear tyre (Optional against order)	8.3-24(Stripe pa	9.5-24	12.4-24	11.2-24
Air pressure of rear tyre	100～150 kPa (1～1.5 kg/cm^2)			
Specification of rear tyre (Optional against order)	15-19.5NHS (Industrial tyre)		16.5-22.5NHS (Industrial tyre)	
Air pressure of rear tyre	260～310 kPa			
Specification of rear tyre (Optional against order)	11.2-20-4(Turf tyre)		12.4-24(Turf tyre)	
Air pressure of rear tyre	100～130 kPa(1～1.3 kg/cm^2)			

2.5 Working devices

Tractor Model		254G2-6/304G2-6	354G2-6/404G2-6
Hydraulic system	Pump type	CBN-E310B HLCB-D04/04F1BR	
	Plowing-depth control	Predetermined and simple adjusting	
	Theoretic flow	10ml/r 4ml/r hydraulic steering	
	Response pressure of the safety valve	14ml/r	16 MPa
Mounting system		Rear mounted ball socket type Ⅰ (GB /T1593.1-1996)	

Max. lifting weight at the point of 610 mm beyond the mounting point		4960 N	6650N
Lifting time		≤3 s	
Pin hole diameter of upper- mounting point		19.5 mm	
Pin hole diameter of bottom- mounting point		22.5 mm	
Traction device	Hitch pin diameter	30 mm	
	Ground clearance of drawbar frame	390	
PTO shaft	Type	Linkage	
	Rotating speed	540 rpm and 1000 rpm	
	Spline size	6-tooth Ø35 Rectangular spline	
	Rotating direction (face to PTO shaft)	Clockwise	

2.6 Electric apparatus and instrument

Tractor Model		**254G2-6/304G2-6/354G2-6/404G2-6**	
Electric circuit		12V Single phase & negative ground	
Battery		6-QW-80L 80Ah	
Starter		QD1332C	
Generator		JF11 350 W	
Preheat plug		10-12-55 12 V	
Measuring range of combination meter	Tachometer	0～3000r/min	Combination meter
	Water thermometer	40～120℃	
	Oil pressure gauge	0～1MPa	
	Fuel gauge	0～$\frac{1}{2}$～1(Fuel tank capacity)	
Electric switch		JK406B	
Horn button		JK938A	
Turning indicator switch		JK938A	
Lamp switch*		JK938A	
Braking lamp switch		JK231B	
Klaxon horn		DL-124D	
Fuse block		AX102	
Voltage regulator		FT111	
Flasher		SG152	
Socket for trailer		QLCZ-1	
Headlamp		60/55 W	White color
Front signal lamp	Marker lamp	10W	Orange color
	Turning indicator lamp	21 W	Orange color
Rear combination light	Brake indicator lamp	21 W	Red color
	Marker lamp	10 W	Orange color
	Turning indicator lamp	21 W	Orange color
Rear working light		50 W	White color
Caution light		10W	Orange color

License plate light		10W	White color
Front combination light	Turning indicator lamp	21 W	Orange color
	Position light	5W	White color

- The switch controls headlamps, rear working lights, marker lamps and flashers.

2.7 Filling capacity

Tractor Model	DF254G2-6/304G2-6	DF354G2-6/404G2-6
Fuel tank	28 L (diesel)	28 L (diesel)
Cooling system	8L	10L
Engine sump	4L	5L
Gearbox and rear axle	20 L	25L

2.8 Main farm implements to be attached (optional)

Name	Specification
Trailer	Rated loading capacity: 2 tons
Rotary tiller	Tilling width: 1.25～1.5 m
Light duty three-furrow plow	Width of plowing : 60 cm; Plowing depth: 16～18 cm
Deep tillage double-plow	Width of plowing : 60 cm; Plowing depth: 18～30 cm
PTO driven rotary spike harrow	Harrowing width: 1.4 m
Mounted combine harvester	Width of harvesting: 1.4～1.6 m; Feeding capacity: 1～1.4 kg/sec.
Straw cutter	Width of cutting: 1.0 m
Light harrow	Width of harrowing: 1.5 m
Wheat seeder	Sowing width: 1.8～2.25 m

Chapter Ⅲ Running-in of the tractor

In order to prolong the service life of tractors, it is essential to do the running-in of a new tractor (or the one right after major overhauling) before putting it into service. Running-in improves the condition of all the running fits and pairing surfaces so as to avoid premature

failures.

3.1 Running-in of engine without load

3.1.1 Please read carefully the engine operation manual before starting the engine.

3.1.2 After starting, let the engine run at the medium or low speed, and then gradually speed it up after water and oil temperature rises. It is to be avoided to run the engine at high speed right after starting. Check whether there is any water, oil and air leakage and whether all instruments and indicators work well while the engine runs for heating-up.

3.1.3 Let the engine run for 5 minutes at maximum speed and observe engine's working status, the total running-in time of engine without load needs 20～30 minutes.

3.2 Running-in of the tractor without load

3.2.1 Drive the tractor away from rest according to regulations set forth in this operation manual.

3.2.2 Run the tractor at every forward and reverse gear for half an hour respectively. And do the steering operation at medium and low speeds, properly use either LH brake or RH brake in concert with the steering operation, try emergency braking when tractor running at gear VII or VIII with limited throttle (and engage the front wheel drive axle if the tractor is a four-wheel drive one).

3.2.3 Engage the PTO shaft, and operate the hydraulic lifting system repeatedly so as to do the running-in of hydraulic system and PTO shaft.

3.3 Running-in of the tractor with load

3.3.1 When operating the tractor with load for the running-in, the load must be added from the light to heavy and gears be changed gradually from the low to high, meanwhile, do steering operation time and again, the time period for running-in with load amounts to 50 hours in total. The running-in criteria are as follows:

Running-in stage	Hitching force (kg)	Running-in time for every gear (hr.)						Total time at various stage (hr.)
		III	IV	V	VI	VII	VIII	
1	130	2	2	4	4	4	4	20
2	250	2	2	5	5			14
3	400	2	2	6	6			16

Points for attention: Engage the front drive axle for the running-in at every gear except Gear VIII if the tractor is a four-wheel drive one.

3.3.2 Running-in of hydraulic lift system with load is to be done with a plow mounted, which should be done before the running-in of transmission system, repeat the lift and release operation for at least 20 times while engine is working at the rated speed.

3.3.3 If the above running-in condition could not be satisfied, then light-load operation can be used as a substitute. For example, shallow-tillage in the even soil with low resistance.

Points for attention:

Observe the working conditions of all the parts and components in every stage of the running-in. If any abnormal condition occurs in the running-in, fix it up immediately. While running in the transmission system, PTO shaft should be "disengaged".

3.4 Work after the running-in

3.4.1 Drain off hot lubricant in all the sumps of chassis immediately, add some clean diesel oil,

jack up one of rear wheels (if it is a four-wheel drive tractor, also jack up one front wheel on the same side), start the engine, run the tractor for 2 minutes at Gear I with low throttle, meanwhile, operate the hydraulic lift system for several times, then stop the engine, drain off the washing oil while the machine is still hot, and fill up with fresh oil at last.

3.4.2 Drain off the lube oil from engine sump while the engine is still hot, add clean diesel oil to wash clean the sump and oil filter, replace filter element and then fill up with fresh lube oil.

3.4.3 Clean fuel filter and air filter.

3.4.3.1 Cleanning fuel filter should not be done in the field but in a clean place.

a. Close the fuel filter cock.
b. Remove the fuel filter and take out the element and dip it in the kerosene to rinse.
c. Please pay close attention not to run the engine when filter removed.

3.4.3.2 Cleanning air filter

Shock the filter element lightly, blow the compressed air from inside. The pressure of compressed air must be under 588kPa.

3.4.4 Drain off the cooling water, clean the cooling system with soft water.

3.4.5 Check all the fasteners, tighten any of them if necessary.

3.4.6 Check toe-in of the front wheel, the free travel of brake and clutch pedals, make adjustment if necessary.

3.4.7 Add grease into all the grease nipples.

Chapter Ⅳ Operating the Tractor

4.1 Control mechanism and instruments of the tractor

There are various control mechanisms and instruments laid out round the operator's seat in the middle part of the tractor. The water thermometer, oil pressure gauge, ammeter, air-pressure gauge are located on instrument panel. Combination meter can be the option, which includes electronic tachometer, ammeter, water thermometer, oil pressure gauge and fuel gauge.

When engine works normally, the water temperature should be within 80 — 95℃ and the maximum should not be over 98℃; The oil pressure be at 2 — 4 MPa but not lower than 0.5 MPa while idly running. Ammeter shows the work status of battery, i.e. when the generator is working and the battery is being charged, the pointer of ammeter should deflect to "+" side, otherwise the battery is being discharged.

Headlight switch, turning indicator switch, rear working lamp switch, flasher switch, electric switch are all placed on the lower-rear side of instrument case.

As to the use of the electric switch, please refer to the working diagram (see Fig. 1) of the Electric switch, i.e. turning the key at "OFF" position to set the circuit off, at "ON" position to set the circuit live, and "Y" position for preheating. Turning the keyclockwise to "H" position is for starting engine after preheating. Turning it clockwise to "ST" position is for starting engine directly without preheating.

Main shift lever is located at the center of gearbox. And the range shift lever is on the right side of gearbox, shift it forward to get HIGH SPEED RANGE, and push it backward to get LOW SPEED RANGE (see Fig. 2).

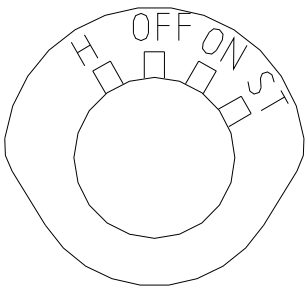


Fig.1 Electric switch working diagram

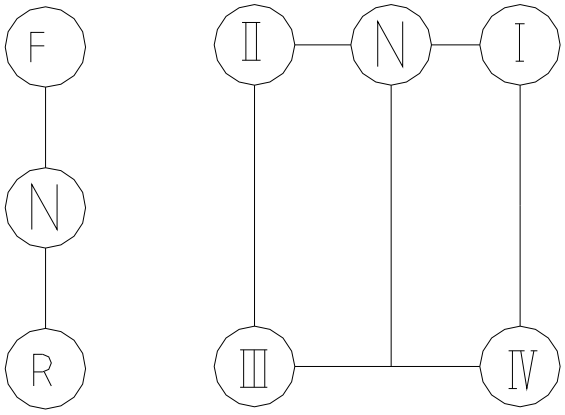


Fig.2 Shifting diagram of main shift lever and range shift lever

The control handle of PTO speed-changing lever is at left-rear side of driver's seat, on the sidewall of rear axle housing. Pull the handle forward to get low speed and push back the handle to get high speed. Push it to the middle position to get neutral.

The control handle of hydraulic lift is at the right-rear side of driver's seat, move the handle forward, backward or set it at the middle, the hydraulic lift linkage will go down, up or stop at neutral position respectively.

The clutch pedal is located at the front of left footrest plate, step on the pedal, the main clutch and sub-clutch will be disengaged in turn.

Brake pedals are at the front of right footrest plate, the left one is for LH brake, and the right one is for RH brake. The two pedals must be locked together while traveling on road.

There are two sets of throttle control mechanisms, one is the foot throttle, and the other is hand throttle. Foot throttle pedal is at the right side behind the brake pedals and the hand throttle handle is at the upper-right of instrument panel case. The engine stop lever is at the lower-left of instrument panel case. The decompression lever is just outside the hand throttle handle.

The control handle of front wheel drive axle is on the left side of driver's seat, pull it backward for engagement and push it forward for disengagement.

4.2 Operation and drive of the tractor

4.2.1 Starting of engine

a. Before starting the engine, check and make sure that: All the connecting bolts of the tractor are tightened; Fuel, cooling water and lubricant are filled in conformity with the regulations; Shift lever is placed at "Neutral" position; Control lever of PTO shaft is at "Disengage" position and, the hydraulic control handle is at "Neutral" position.

b. Check whether there is any air in fuel system. Bleed air from the plug on injection pump by manually pumping it if necessary.

c. Shift the hand throttle to "Medium" position.

d. Depress the clutch pedal (so as to reduce starting resistance) and turn the electric switch key anti-clockwise to "H" position to start the engine. After starting, turn the key to "ON" position immediately. If engine starting fails at first time, try once again after 1～2 minutes. If engine starting fails for three times in succession, make close check and do not start it until troubles are all fixed up.

In case the ambient temperature is below 5℃, the decompression device may be used for increasing the rotating speed of engine for easy starting or turn the starter key to "ST" position for preheating (no more than 15 seconds) to start the engine.

e. Run the engine at medium or low speed after starting, observe whether it works well, if OK, then speed up slowly but do not work with load until water temperature gets to 50 ℃.

Points for attention:

a.When starting, the time duration of every attempt of operating the starter-motor should not be more than 15 seconds, otherwise, battery and starter motor will be easily damaged.

b.Hot water should be filled into radiator to warm up the engine before starting if insevere cold season, or park the tractor indoors for keeping it warm.

4.2.2 Drive away operation of tractor

a. Release the hand brake handle (if any implement is linked, it must be lifted up first).

b.Step on clutch pedal all the way to the end, shift speed-changing lever to the desired gear. If failed to shift into gear, release the clutch pedal a little, and depress it again for engaging the gear.

c.Accelerate gradually, meanwhile release clutch pedal slowly to drive the tractor away from rest.

d. Normally, low gear should be used for driving away operation.

4.2.3 Driving the tractor

a. Selecting the proper gear

Proper gear should be selected to let the engine work with 80% of maximum power. When rototilling, Gear I, II or III will be used. Gear IV or V will be used for the power-driven harrow and plowing and towing operation and Gear VII & VIII for hauling operation.

b. In operation, it is prohibited to ride the clutch (i.e. keep foot on clutch pedal half depressed) or to control speed with the clutch. Otherwise the clutch will get overheated, which will cause premature wear-out of the friction discs because of friction disc slippage, and even cause further damage to the release bearing, release levers and the release bearing seat as well.

c. In field operation, LH or RH brake may be singly used to reduce the turning radius. When emergency braking, depress down clutch pedal and brake pedal at the same time, NEVER step on brake pedal only, so as to avoid damage to the brake and other parts.

d. Close hydraulic lock valve and disengage PTO shaft when the tractor is going to travel for a long way with an implement mounted.

e. When tractor works in the dry field, the user may install the rear wheel ballast (optional) in order to make full use of the traction force. If the tractor is provided with the cabin, then it is also OK not to install the rear wheel ballast.

4.2.4 Stop of tractor

a. Reduce throttle to slow down the tractor.

b. Step on clutch pedal, shift speed-changing lever to “Neutral” position.

a. Depress brake pedal to stop the tractor, then release clutch and brake pedals, let engine run idly at low speed and apply the parking brake.

b. Lower down the implement attached.

c. Never step on the throttle fiercely just before stopping the engine but let the engine run idly at low speed for a while after the engine is unloaded so as to cool down the lubricant and water, then pull out the engine stop lever to stop engine. Drain off cooling water when ambient temperature is below 5℃ and drain off fuel oil when ambient temperature is below -5℃.

4.3 Control and usage of tractor’s working devices

4.3.1 Hydraulic lift system

a. Lifting & lowering the farm implements(seeFig. 3) Shift the control handle (4) forward, then the attached implement will be lowered down. Fix the depth stop block (1) at such a suitable position that the pin (2) will just touch the depth stop block (1) when implement is lowered down to the desired working depth, pull back handle (4) to the neutral position quickly, so that the implement will be kept at the preset working depth. When lifting of the implement is needed, just shift the handle (4) backward, the implement will be lifted up until pin (2) touches lift stop block (3), then push the handle to the neutral position. Different lifting height can be obtained if lift stop block (3) is fixed at different positions.

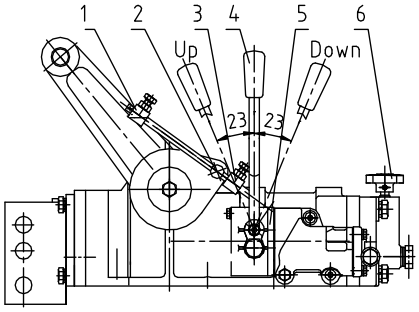


Fig. 3 Hydraulic lift

1. Depth stop block 2. Pin 3. Lift stop block
4. Control handle 5. Hydraulic oil distributor
6. Lock valve

If working depth needs to be adjusted slightly during working, the control handle can be moved forward or backward a little bit to meet these needs, please note that the handle must be moved to the neutral position right after the slight adjusting is made. If lifting speed needs to be adjusted, just screw down or up a little bit the hand wheel of hydraulic lock valve (6).

b. Farm implement with land-wheel

Push the control handle (4) forward to the “Down” position, oil in the distributor comes back directly to the gearbox (i.e. oil in the hydraulic distributor has the passage to oil-return pipe) and the implement will drop down to the ground by its weight. Then the tilling depth of the implement is to be controlled by its land-wheel.

Points for attention

a Shift the control handle to neutral position immediately after the filling stroke of the ram is finished, so as to avoid long time opening of the safety valve.

b Disassemble the male connector if no external delivery is needed and reassemble the plug. Remember to screw up the locking valve (6) to the highest position, otherwise the hydraulic lift system will not work.

c. Attaching implement to the tractor

Back the tractor to let the hitch point of lower link approach to a farm implement. Move back and forth the control handle till the connecting holes of lower links and the hitch pins of the farm implement are in line with each other. Put the hitch pin in either hole and lock it with a locking pin. At last, adjust upper link to a proper length, link it together with the column of implement by a long pin and then lock it with a locking pin.

d. Adjusting the lift linkage

Higher working efficiency, lower working resistance and reliable cultivation quality could be expected if the lift linkage and corresponding implements are adjusted

correctly. The upper link is for adjusting the fore-and-aft leveling of plow stock and the penetrability of the plowshare. Right & left lifting rods are for adjusting the plow stock's crosswise leveling. The land-wheel is for plow-depth control if there is one provided. Adjust the land-wheel first at the beginning of plowing, when one plow share has reached the required plowing depth, adjust the upper link to make the plow parallel to the ground surface, then adjust the length

of left or right lifting rod to make depth the same of each plow. For the second bout plowing, since right wheels of the tractor get into the furrow, the plowing depth of the right side plow share will get increased all of a sudden, so right lifting rod and the length of the upper link need to be readjusted again in order to get same plowing depth of every share.

Adjustment of the length of the check chain: The check chain limits the deviation between lift linkage and implements. During plowing some deviation (about 5 cm) is needed to assure the plow's automatic center resetting. But if the deviation is too much, plow will hit rear wheels of the tractor and cause damage. Since no deviation is needed for rototilling, just lock tightly with nuts after adjusting. Connect the two lower links with the check spring after demounting implement so as to avoid their touching the tyres.

Points for attention:

a. **Never** adjust the upper link and left or right lift link to the minimum length at the same time, otherwise the implement will possibly knock at the cabin or the driver when it is rising to the highest position.
b. To avoid opening the safety valve, **Never** move further the control handle backward after the implement reaches the highest position and gets neutralized automatically.
c. Driving away and turning operations of the tractor are prohibited while the attached implement is not yet lifted off the ground.
d. Make sure the implements fit the tractor well and there is no interference of implements' lifting or lowering.
e. Attention must be paid to avoid implements' running into earth bank or shaking violently, the low speed gear must be used when crossing the fields so as to avoid any damage of the tractor or implements.

4.3.2 Operation of PTO shaft

a. The PTO shaft speed has the combination of 540 and 1000 rpm. It can be realized by shifting the speed-changing lever of the PTO shaft.
b. Input rotational speed of the PTO driven implements must be the same of the PTO shaft's, since the improper matching will cause serious premature failure of the tractor and implements, and also effect the farming job quality.
c. Shift the control handle forward to disengage the PTO shaft, dismount drawbar coupling and the PTO shaft guard, then connect PTO shaft with a specific farm implement. The PTO shaft speed of tractor and the required input speed of farm implement should be identical.
d. Fix firmly the tractor and implement if some stationary job is to be done.

Chapter Ⅴ Adjustments of the tractor

5.1 Adjustment of the engine

Please refer to the engine operation manual for its adjustment.

5.2 Adjustment of the clutch

Clutch will slip or disengage incompletely in operating because of parts wearing, so it must be adjusted in time to ensure the tractor's normal working status.

The structure of the linkage-type, double acting clutch is shown as Fig. 4. It mainly consists of three parts: the driving part, driven part and controlling part. The driving part rotates with the engine flywheel; only when the clutch engages can the driven part rotate with the engine.

Double acting clutch should be adjusted on the flywheel. The adjusting steps are as follows:

a. Loosen the nut M10×1 (18), adjust the length of adjusting bolt (20) to make the distance between three release levers (17) and the end face of flywheel be of L = 156.5 mm. Meanwhile, the tips of three release levers should be kept in the same vertical plane with a permissible error range of 0 to 0.20 mm. After adjustment is done, tighten the nut M10×1 (18).

b. Loosen the nut M10×1 (7), adjust the length of Adjusting bolt (8) to make the distance between the end faces of Adjusting bolt (8) and the Sub-clutch pressure plate be of 0.9～1 mm. After adjustment is done, tighten the nut M10×1 (7)

c. Loosen the nut M10×1 , adjust the length of pull rod (11) until the free travel of pedal reaches 30±2 mm, ensure that the clearance from tips of three release levers (17) and the release bearing assembly (16) is of 2～2.5 mm, then tighten the nut M10×1 .

After adjustment is done, step on the clutch pedal, the main clutch and sub-clutch should be disengaged in turn; after releasing the pedal, the main clutch and sub-clutch should be engaged smoothly and work reliably.

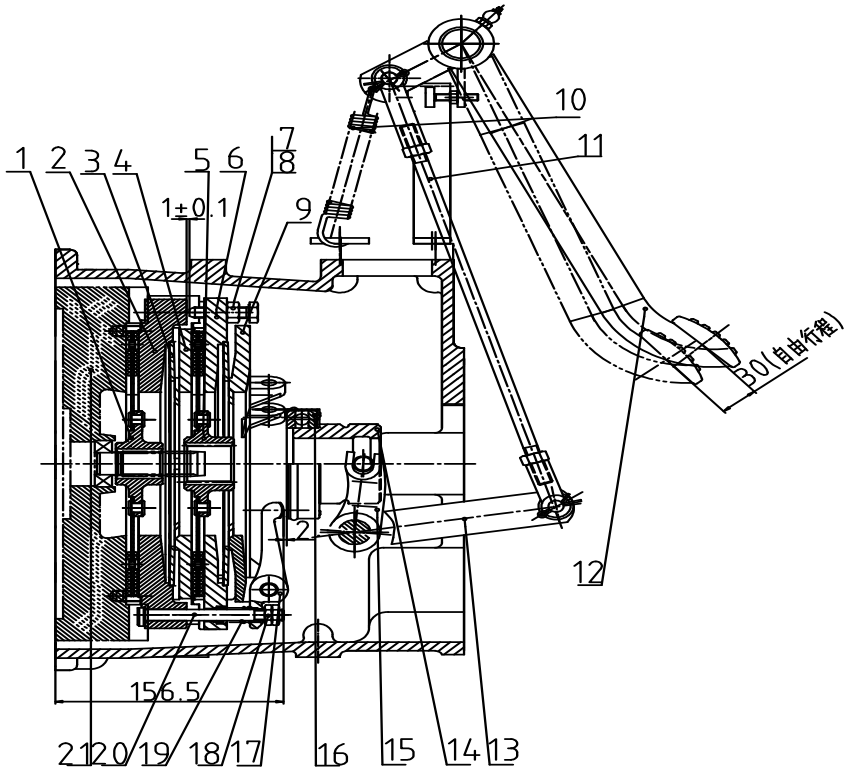


Fig. 4 Linkage-type double-acting clutch

1. Main clutch driven disk assembly 2. Main clutch pressure plate 3. Dish spring 4. Fixed clutch pressure plate 5. Sub-clutch driven disc 6. Sub-clutch pressure plate 7. Nut M10×1 8. Adjusting bolt 9. Clutch cover 10. Ruturn spring 11. Pull rod 12. Clutch pedal 13.Release shaft 14 Release bearing seat 15 Release fork.

16.Release bearing assembly 17. Release lever 18. Nut M10×1 19. Ruturn spring 20. Adjusting bolt 21. Flywheel

5.3 Adjustment of the rear axle

Rear wheel track adjustment (see Fig. 5.1, Fig. 5.2):

Rear wheels can be fitted with the concave side of wheel disk facing either inward or outward. The wheel track is different for each of these fitting positions.

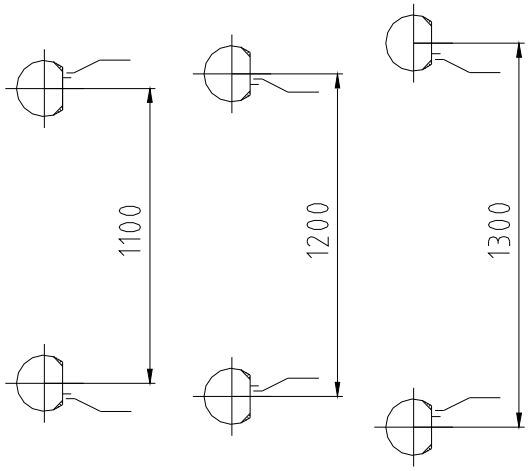


Fig. 5.1 Adjustment of rear wheel track（254G2-6/304G2-6）

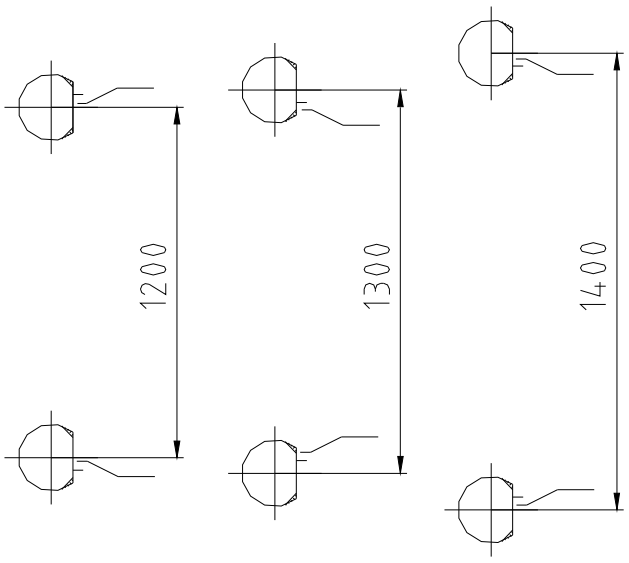


Fig. 5.2 Adjustment of rear wheel track（354G2-6/404G2-6）

Danger!

When removing the rear wheels, please take great care and protecting measures, and use suitable hoist.

Attention:

Select the suitable rear track first and then adjust the front track to suit the rear track.

Points for attention:

a. Make sure that front and rear wheels are symmetrical about the tractor centerline after adjustment is made.

b. Rear wheels can be exchanged for adjusting wheel tracks (for rear wheel only).

c. Make sure that the direction of lugs are determined by facing in the direction of forward travel.

5.3.1 Adjustment of front wheel drive axle

Meshing conditions of gears of front wheel drive axle affects greatly the driving efficiency and noise level, so attention must be paid to precision adjustment of gears while assembling.

The construction of front wheel drive axle is shown in Fig. 7. There are 3 pairs of bevel gears in meshing from front center driving bevel pinion to drive shaft in the front wheel drive axle. The gear backlash and meshing zone print (the print should be in the middle of all the teeth face and deflecting to small end of teeth slightly, i.e. short toe contact, see Fig. 6) of every pair of gears should be adjusted with great care.

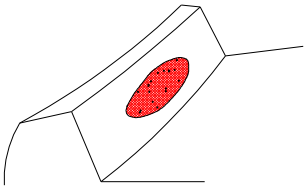


Fig. 6 Meshing prints of bevel gears

a. The meshing of front main drive gears is adjusted by selecting the shims (15) of bearing seat and the shims (11) of main drive case of suitable thickness to ensure the correct meshing print and the gear backlash within 0.16～0.32 mm. Meanwhile, keep the pre-stress of bearing on both ends of the differential within 100～150 N;

b. The meshing of mid gear pair at both ends of front wheel drive axle is adjusted by selecting the shims (1) of suitable thickness to ensure the gear backlash within 0.16～0.3 mm and the correct meshing print.

c. To ensure the gear backlash of final drive within 0.16～0.3 mm, it could be done by altering the thickness of shims (13) for final drive, meanwhile, keep the correct meshing print.

d. The clearance of 0.1～0.5 mm between the lower-face of the retainer rings (4) of the upright shaft (3) at either end and the upper-face of driven pinions (7) is obtained by selecting and using the shims (6) of suitable thickness.

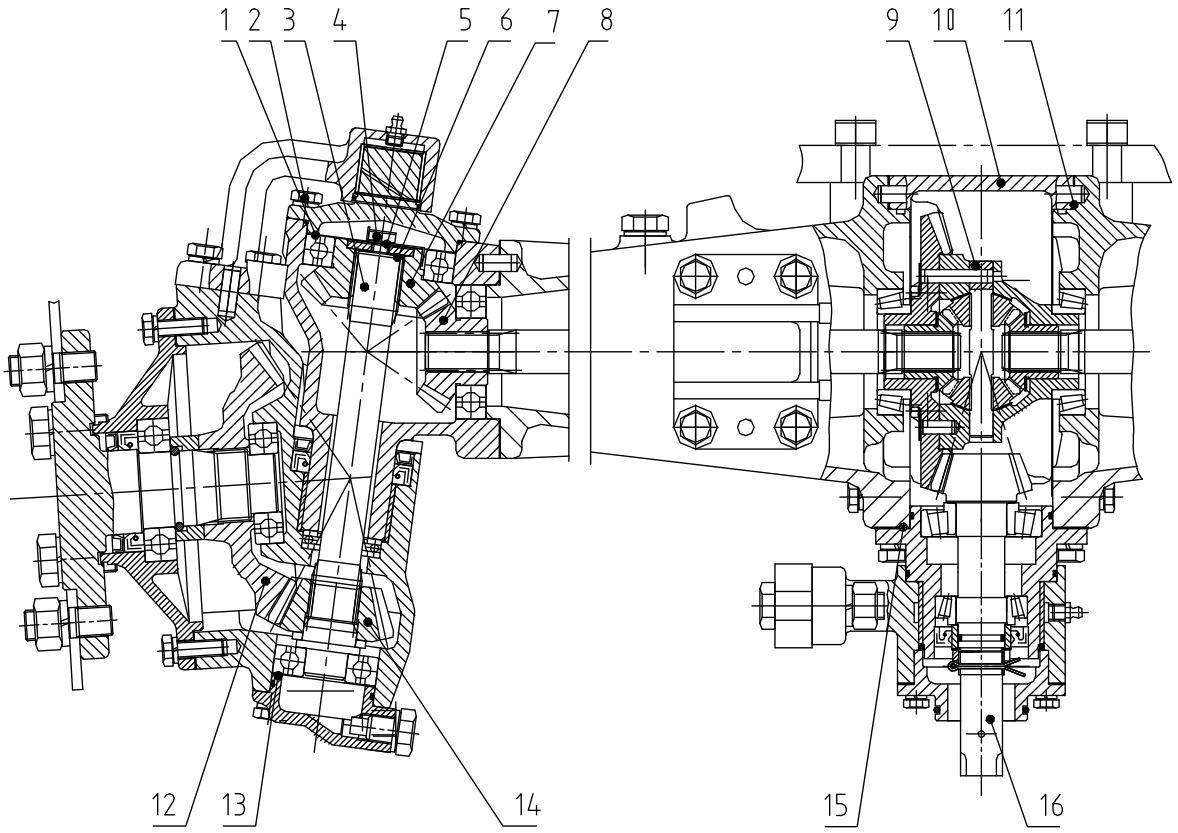


Fig.7 Diagram of front wheel drive axle

1.Shims 2. Bolt M10×25 3. Upright shaft 4. Retainer ring 5. Retaining ring for upright shaft
6. Shims 7. Driven pinion 8. Drive pinion 9. Differential 10. Main drive case
11. Shims 12. Final reduction driven gear 13. Shims 14. Final reduction drive gear
15. Bearing seat adjusting shims 16. Spiral bevel pinion

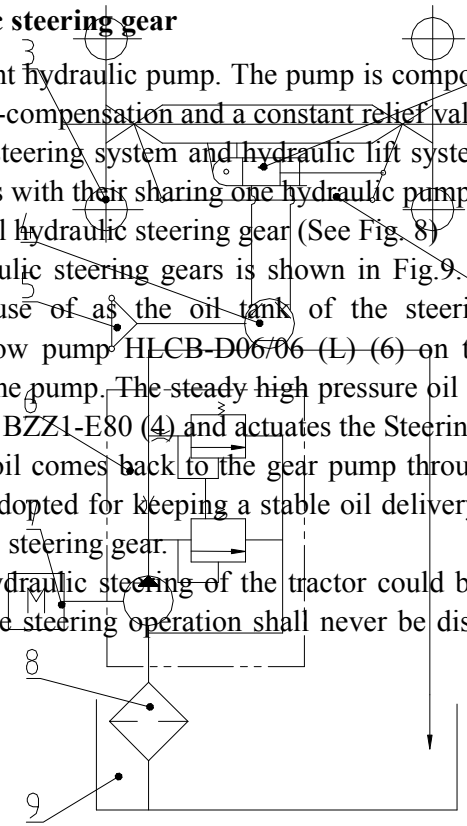
5.4 Use and adjustment of the full hydraulic steering gear

This steering system adopts an independent hydraulic pump. The pump is composed by an external gear pump with axial interval self-compensation and a constant relief valve. So the steady working performance of both the steering system and hydraulic lift system will be ensured and there will be no disturbance as with their sharing one hydraulic pump.

5.4.1 Working principle and operation of the full hydraulic steering gear (See Fig. 8)

The working principle of the full hydraulic steering gears is shown in Fig.9. The Rear axle housing (9) is also being made use of as the oil tank of the steering gears. Low-pressure oil flows into Constant flow pump HLCB-D06/06 (L) (6) on the Diesel engine (7) through the Ø18 inlet pipe of the pump. The steady high pressure oil flows into the Full hydraulic steering gears of Model BZZ1-E80 (4) and actuates the Steering cylinder (2) for steering action, but the overflow oil comes back to the gear pump through the oil return pipe. The Constant flow pump is adopted for keeping a stable oil delivery, so as to ensure the steady working of the hydraulic steering gear.

So long as the engine is running, the hydraulic steering of the tractor could be realized just by turning the steering wheel, and the steering operation shall never be disturbed by hydraulic lifting operation.



1.Four-bar steering linkage
2.Steering cylinder (See Appendix 7)
3.Front driving wheel .
4.Full hydraulic steering gear
102SC-1-63-07-AH
5. Steering-wheel
6. Constant flow pump HLCB-D04/04
7. Diesel engine
8. Oil Filter
9. Oil tank (i.e. rear axle housing)

Fig. 8 Working principle of the full hydraulic steering gears

5.4.2 Structure of the full hydraulic steering gear and points for attention

a. The structure of the full hydraulic steering gear is shown in Fig. 9. The Rotary servo valve, consisting of the Valve element (6), Valve bush (5) and Valve body (4), controls the flow direction of hydraulic oil. The Stator (9) and Rotor (10) makes up the pair of cycloidal toothing functioning as the flow control valve, which makes the hydraulic oil flow enter into the steering cylinder be in the direct ratio of the turning angle of steering wheel. The Linkage shaft (7) transmits torque.

b. The full hydraulic steering system is actuated by the steering cylinder, therefore, the torque to be applied to the steering wheel is little, normally 4-5 N. m. If the steering operation is found out to be quite heavy or even jamming, please do not recklessly turn the steering wheel with fierce force but to check thoroughly and fix up the trouble first.

c. In case the tractor is to be dislocated by pushing or hauling while its engine is stopped working, then the steering wheel should be turned fully manually. Please note the torque to be applied to the steering wheel should not be over 250 N. m, and further more, the impulsive and fierce force is prohibited, otherwise some parts might be damaged.

d. Great care should be taken of the concentricity of the steering shaft and the full hydraulic steering gear while assembling. A clearance of 0.5～1.0 mm should be kept between the steering shaft and steering gear and there also should be a little bit endplay of the steering shaft, so as to avoid any jamming.

e. Check all the screw connection portions and tighten all the bolts and nuts to avoid any oil leakage of all coupling surfaces and connecting parts, because the oil leakage is strictly forbidden while the Full hydraulic steering gear is working.

f. Wash clean all the pipelines of the hydraulic steering gears, strictly prevent them from any contamination while assembling or dismounting them for replacement. The filtration fineness of the filter should be better than 30 μ. The hydraulic oil should be renewed periodically.

g. The oil temperature of the Full hydraulic steering system is to be kept within the range of -20ºC ～ + 80ºC, but the normal working temperature of the hydraulic oil should be within +30ºC ～ + 60ºC.

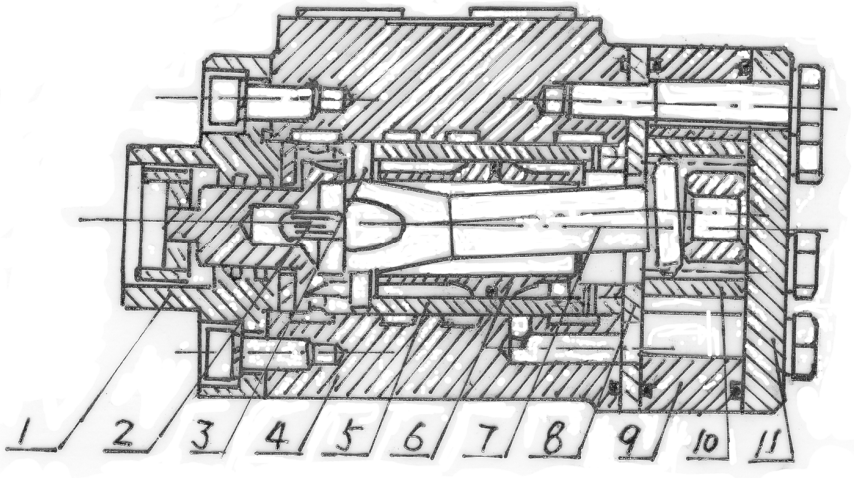


Fig. 9 Structure of the Full hydraulic steering gear

1. Front cover 2. Leaf spring Thrust bearing 3. Pin 4. Valve body
5. Valve bush 6. Valve element 7. Linkage shaft 8. Isolation plate
9. Stator 10. Rotor 11. Rear cover

5.5 Adjustment of the Disc brake

I After working for a period of time. The wear and tear of the brake discs enlarges the gaps between brake discs and inner end face of the brake housing and the inner end face of the brake cover as well, which affects the brake performance considerably. Excessive free travel of the brake pedal will even cause the brake ineffective. So the brake should be inspected and adjusted regularly to ensure the safety of the tractor while in traveling.

No matter the tractor is new or old , the adjustment should be done in time whenever one of the following brake faults appears:

a. The brake is ineffective due to excessive free travel of brake pedals;

b. The free travel of the brake pedals is too much little and the brakes are kept in semi-braking status all the time, which makes the brake housing become hot and further quicken the wear and tear of the brake discs;

c. The braking force of left side and right side pedals is different, which causes the brake bias. Fig. 10shows the structure of disc brake that is consisted of the brake itself and the brake control mechanism. The adjusting methods ar as follows:

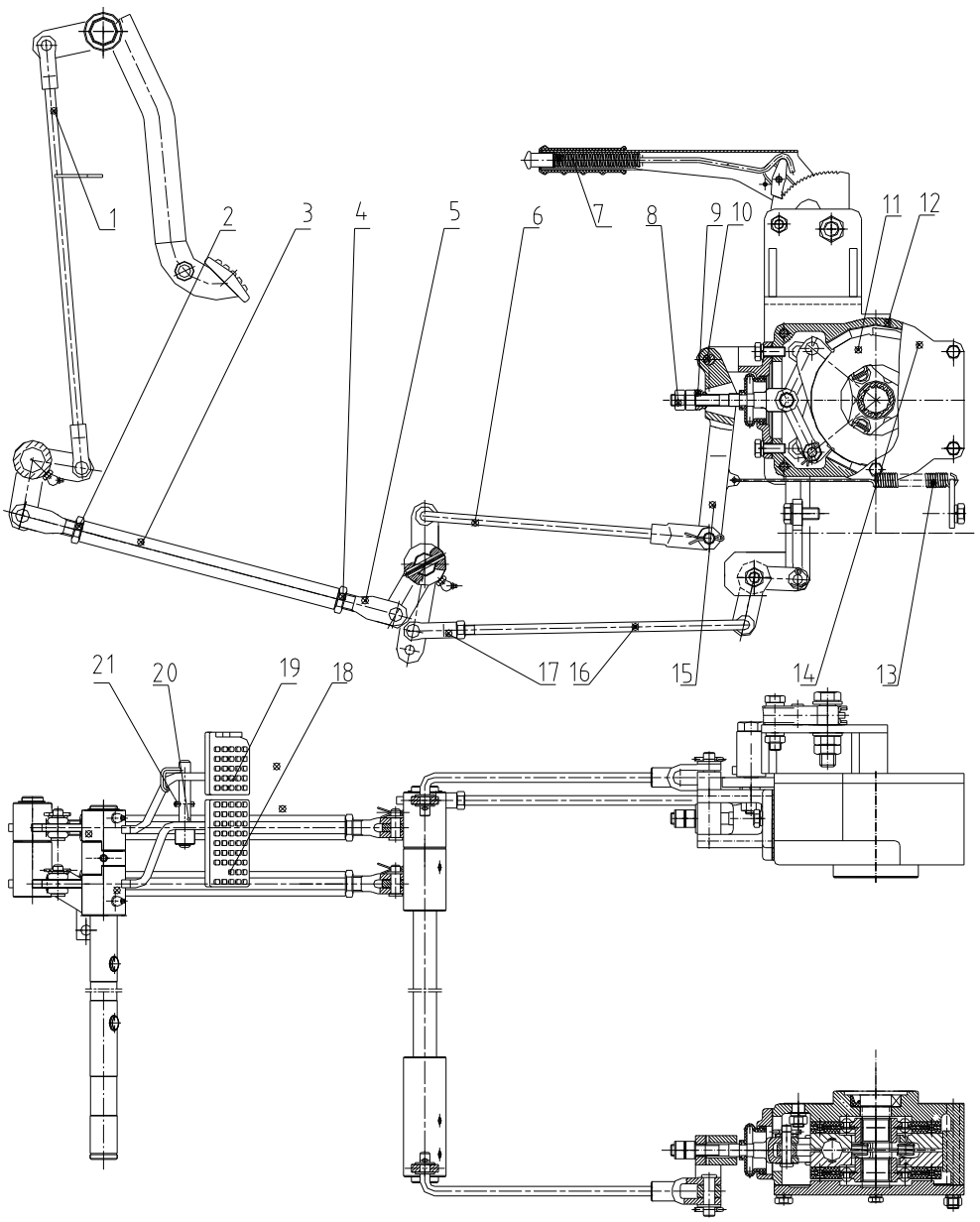


Fig. 10 Adjustment of disc brake

1. Pull rod 2. Nut M16 3.Push rod 4. Nut M16Nut M12 5. Nut M12 6. Pull rod
7.Hand brake assemble 8. Nut M12 9. Self-aligning cushion 10. Pin 10x70 11. Brake assemble
12. Brake housing 13. Ruturn spring 14. Brake cover 15 Rocker arm16. Hand brake rod
17. Connecting clevis 18.LH brake peda 19. RH brake peda 20.Interlock pin 21.Pin 5x20

a .Free state adjustment of the disc brake

Loosen the outer locking nut M12 (8) to change the mounting angle of the rock arm (15) through the longitudinal motion of the self-position cushion (9). Ensure that the central connecting line of the upper and lower holes incline to the rear from the plumb line. After adjustments are made, lock it with the locking nut (8).

b .Travel adjustment of the brake pedal

Loosen the locking nut (2)and(4) on the push rod adjustment fork (5) and on the brake pull rod adjusting fork to change the length of the pull rod (3) until the displacement

(from the highest position of the brake pedal to friction disc assembly being completely braked) on the brake pedal is 25-35 mm. When the left and right pedals are locked together, stepping on the pedal will simultaneously brake the left and right wheels. After adjustment is completed, lock pull rod and fork with locking nut (2)(4).

c .Brake deviation motion adjustment

When left and right brake adjustment is identical and the tractor is running at high speed, if the brake is applied as in an emergency, an identical tire print length should appear and there should be no pulling motion to one side or the other. If this is not true then the left and right brake are not matched. In such case, the brake-pulling rod should be shortened on the side with the short print length of tire, or vice versa, in order to make both rear wheels to brake simultaneously and reliably.

Adjustment of rear axle

In order to assure the reliable working of main drive, the spiral-bevel pinion and spiral crown gear should be assembled with a mated pair and adjusted to right position for reasonable engaging. In operating, if normal engagement position is disrupted due to bearing's damage or other reasons, it must be adjusted again after replacing the damaged bearing with a new one or fixing up other troubles. As to the assembling diagram of the main drive, please refer to Fig. 12.

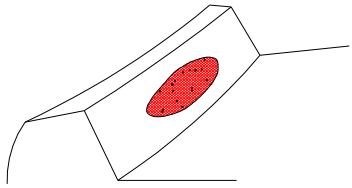


Fig. 11 Diagram of meshing zone

While assembling the spiral-bevel pinion and the spiral crown gear, the pre-stress of the bearings in main drive has to be correctly established first, and the meshing of the pinion and crown gear could be then adjusted.

As to the spiral bevel pinion, its pre-stress of bearings is to be adjusted by screwing down the Locking nut (2). The torque to be applied for turning the spiral-bevel pinion should be kept between 1.176～1.764 N. m. after the assembling is completed. If the torque can't be measured by a specific apparatus, then it must be adjusted by an experienced people. After adjusting is made, the locking nut (4) must be tightened, and the angles of check shim (3) should be pulled down into slots of the two lock nuts respectively. The axial position of the spiral-bevel pinion is to be adjusted by adding or deducting the adjusting shims (1), the pinion will goes forwards if the adjusting shims (1) are added, the pinion will withdraw if the adjusting shims (1) are deducted.

The adjustment of crown gear is realized by altering the Adjusting shims (7) on the left and right Bearing seats (8). While adding or reducing the adjusting shims (7) of same thickness to or from either bearing seat, the pre-stress of bearings is alternated but the crown gear position will kept unchanged; if moving the Adjusting shim (7) from one bearing seat to the another one, the crown gear will be shifted towards the side where the Adjusting shim (7) is added but the pre-stress of bearings will remain unchanged. The pre-stress of the spiral crown gear bearings should be kept between 1.2～1.8 N. m.

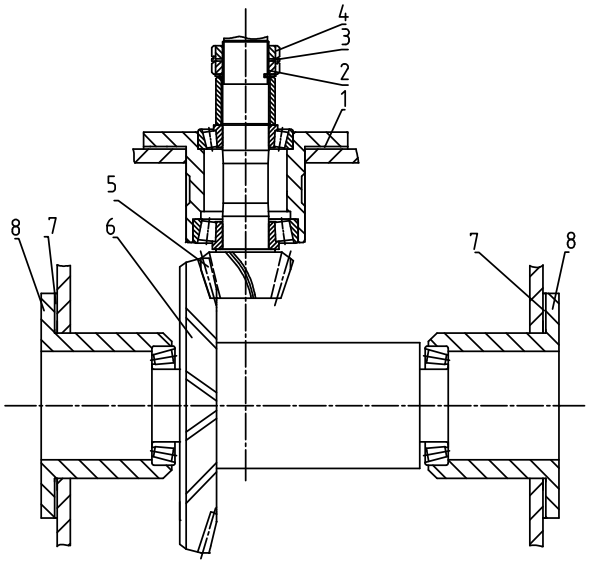


Fig. 12 Main drive mounting diagram

1. Adjusting shims of pinion gear 2. Locking nut 3. Check washer 4. Locking nut 5. Pinion gear 6. Crown gear 7. Adjusting shim of crown gear 8. Bearing seat

The meshing zone can be measured by smear test of painting the crown gear teeth with some colors such as red lead or Prussian blue. The standard meshing zone should drift to small end slightly (i.e. short toe contact, see Fig. 11). The meshing zone position could be alternated through adding or deducting the adjusting shims of the spiral-bevel pinion and the mated spirl crown gear as well. The print on crown gear shall be taken for evaluation, no matter the print is on convex surface or concave surface. After adjustment having been made, the gear backlash should range from 0.15～0.30 mm.

5.6 Final drive system

If chippings from the pinion teeth surface of final drive are found after disassembling the rear axle, then the pinions of left final drive gears and right one should be exchanged, which may prolong their service life.

5.9 Electrical system

The electric circuit of the tractor is of 12 V.

1. Battery

The tractor is equipped with a 6-QW-80 maintenance-free lead-acid battery.

When ammeter's pointer turns to "+", the battery is in charging, and when ammeter's pointer turns to "-", the battery is in discharging. The battery is in charging while the tractor is working in normal condition.

We may use an AVO meter to check and judge whether the battery is sufficiently charged or not. To avoid unnecessary accident, Please DO NOT short circuit by connecting directly the two battery poles (positive and negative) or connecting the positive pole to the tractor's outer

housing for checking current intensity of the battery.

For the sake of your safety and effective use of our product, please carefully read the instruction before using.

SAFETY

Keep children away from acid and batteries.

It is of extreme importance that batteries be inserted into equipment correctly with regard to polarity.

A highly-explosive oxyhydrogen gas mixture occurs when charging batteries, therefore, fires, sparks, naked lights and smoking are prohibited. Avoid causing sparks when dealing with cables and electrical equipment, and beware of electrostatic discharges. Avoid short-circuits.

Battery acid is highly corrosive, therefore: Wear protective gloves and eye protection. Do not tilt battery, acid can escape from the degassing openings or vents.

Rinse off acid splashed in the eyes immediately for several minutes with clear water. Then consult a doctor immediately. Neutralize acid splash on skin or clothes immediately with acid neutralizer (soda) or soap suds and rinse with plenty of water. If acid is consumed, consult a doctor immediately.

Hand in old batteries at a collection point. Never dispose of old batteries as domestic waste.

STORAGE

Always keep the battery as fully charged as possible to prevent the formation of large lead sulfate crystals. Never leave the battery standing when flat (or partly discharged). Check charged batteries in storage at regular intervals and recharge at the latest when the PowerCheck displays a dark light.

Do not place batteries in direct daylight without protection. Discharged batteries can freeze up, therefore store in an area free from frost.

This series of product can be stored for 6 months in room temperature.

CHARGING

While charging, of importance in this process is the optimum controller voltage of 14.2 V. If the controller voltage is too high, water will be released as a product of electrolysis. This lowers the electrolyte level (fluid level) as time goes on. If the controller voltage is too low, the battery will not be charged correctly, shortening its service life.

Consistent voltage charging: 16 V. (16.2 V. maximum)

Consistent current charging: Set the electric current as C20/10 and keep the charging voltage less than 16 V.

Charging finish: Till the hydrometer turns to green or the consistent open circuit voltage is larger than 12.65 V.

INSTALLATION

Prior to installation or removal: switch off all electrical consumers.

Essential for installation: the battery must be installed in such a way that it is mechanically secured. Its degassing vents must not be covered. The positive and negative cables should be connected correctly with the terminals.

Essential for removal: when detaching the electrical connections, first remove the ground cable from the negative terminal. Then disconnect the cable from the positive terminal. This avoids short-circuits.

MAINTENANCE

According to the PowerCheck, a green display and a thumb pointing up-wards show that the battery is at maximum charge and will always start the vehicle reliably. If the charge state is

insufficient, the driver will see dark. The battery should then be recharged as soon as possible. Once this has been done, PowerCheck displays a green light again and the driver can get back on the road.

The surface of the battery should always be clean and dry.

Check at regular intervals that the battery and its cable connections are firmly in place, and tighten if necessa

Points for attention:

2 Fuse

Before replacing a blown fuse with a new one of the same current rating, determine the exact causes of the failure and make necessary repairs.

Fuse No.	Electric circuits to be protected	Current rating
1	General electric circuit	40A
2	Oil pressure gauge, water thermometer and horn	10A
3	Electronic voltage regulator	10A
4	Headlamp	25A
5	Marker lamp, Rear working light,	20A
6	left & right turning indicator lamp, Brake indicator lamp, caution light	20A

Chapter VI Lubrication and Maintenance of the Tractor

6.1 Oils to be used by the tractor and lubrication

6.1.1 Fuel oil and lubricants for the tractor

Position	Category of oil	Standard No	Remark
Fuel tank	No.10# Light diesel Above 8℃	GB252-2000	
	No.0# Light diesel 8℃～4℃		
	No.-10# Light diesel4℃～-5℃		
	No.-20# Light diesel-5℃～-14℃		
	No.-35# Light diese-14℃～-29℃		
Gearbox, rear axle, front drive axle, hydraulic system	N100 Drive & hydraulic dual-purpose oil	GB443-1989	SAE85W
Clutch release bearing	No.2Lithium-based grease	GB73245-1994	All atmospheric temperature
Other grease nipples	No.3 calcium-based grease	GB491-1987	All atmospheric temperature
Engine sump Air pump	HCA-14 Diesel lube oil (SAE40)	GB11122-1997	Summer
	HCA-11 Diesel lube oil (SAE30)		Winter
Steering gear （4WD）	N100 Drive & hydraulic dual-purpose oil	GB443-1989	All atmospheric temperature

Oil inlet: Engine (please refer to the Engine operation manual)
1 on upper-cover of the rear axle housing
1 on crankcase of the air pump
1 on left & right sleeves of the front axle

Grease nipples: 1 Water pump bearings of the engine
2 on the turnbuckles of the left & right lifting rod
1 on upper link
2 on the turnbuckles of the left & right check chains
2 on front & rear jaws of steering drag link
2 on left & right jaws of steering tie rod
2 on left & right steering arms
2 on rear pedestal (four wheeled drive only)
2 on left & right steering crank (four wheeled drive only)
1 on clutch operating shaft
1 on brake operating shaft

Oil level inspection points: Dipstick of engine
Dipstick on upper cover of rear axle housing
Dipstick on left half shaft housing of front wheel drive axle

Oil drain plugs on:
Bottom of the engine sump
Lower-left side of the gearbox
Lower-rear side of the rear axle housing

Bottom of the oil tank
Bottom of front wheel drive housing (four wheeled drive only)
Bottom of transfer case housing

6.1 Maintenance of the tractor

6.2.1 Every-shift maintenance

A. Engine

a. Make sure that the engine lube oil is enough and keep the oil level between the middle notch and upper notch on the dipstick. Oil level beyond the upper notch is NOT permitted. Let the new engines and those that have been stored for a long time run at low speed for 5 to 10 minutes, then check the oil level again and replenish if necessary.

b. Fill up the water tank and diesel tank with enough cooling water & diesel oil respectively.

B. Chassis

a. Check and tighten all the external bolts and nuts.

b. Grease the following positions:
Left & right jaws of steering tie rod, left & right steering arms of the front wheel drive axle and bearing of the water pump of engine.

c. Remove the fault of oil, water or air leakage, clean the outer surface if dirt.

d. Check tyre pressure, inflate if necessary.

6.2.2 Maintenance after 50 working hours

A. Engine
After 50 hours' running-in with light load, the lube oil of the new engine should be changed entirely, including the lube oil in the engine sump and the injection pump. Change the oil filter element. Clean the sump, oil filter and strainer with clean diesel.

B. Transmission system
After the tractor is used for 50 hours, check the free travel of the clutch pedal, and adjust it if necessary.

C. Lubricate the nipples mentioned above with a grease gun .

6.2.3 Maintenance after every 100 working hours

A. Engine

a. Change oil in the engine sump and clean the strainer.

b. Change engine oil and diesel filter elements, and clean the cavity of filters.

c. Check the tension of fan belt, adjust it if necessary.

d. Check oil level of injection pump, add oil if necessary.

e. Clean the air filter (if working in a dusty environment, do it every-shift).

B. Clutch
Check the free travel of clutch pedal, make adjustment if necessary.

6.2.4 Maintenance after every 250 working hours

a. Transmission system
Check the oil level in rear axle, add oil to prescribed level if necessary.

b. Battery
Apply some Vaseline on the battery lead as required.

c. Change air filter.

6.2.5 Maintenance after every 500 working hours

a. Check opening pressure and atomization of injector, wash it clean and make adjustment if necessary.
b. Check and fasten cylinder head nuts, adjust valve clearance if necessary.
c. Clean the water scale in cooling system.
d. Replace the lube oil in injection pump.

6.2.6 Maintenance after every 1000 working hours

A. Engine

a. Check the air tightness of valves, lap them if needed.
b. Check the advance angle of injection, make adjustment if necessary.

B. Transmission system

a. Change the lube oil at least one time a year.

Attention:

Since there is only one small hole as a passage between the gearbox and rear axle housing, After filling up the oil, it is necessary to wait for quite a long time to check the oil level again. Make sure the oil level is within the upper and lower limits notched on the dipstick.

b. Electrical system

Give a through check to the whole system and change all broken parts.
Apply fresh grease to the bearings of electrical generator.

Note:

Maintenance should be carried out at the specified time intervals, which will assure the normal and regular operation of your tractor.
Always remember that the check time intervals very much depend on ambient and working conditions, or on your experience.
Remember that, in any case, it is better to check too much than too little.

Caution:

In case you have any problem or difficulties in operating or maintaining your DF Brand Tractor, please get contact with one of our DF dealers accessible.

6.3 Tractor Storage

When your tractor is to be kept in storage for an extended period of time, be sure to take the protective measures hereunder:

- The maintenance of engine should be carried out as per the instructions of engine manual.
- Thoroughly clean the tractor, especially the body parts; brush protective coating on the unpainted metal parts; store the tractor under cover and in dry and well-ventilated premises.
- Ensure that all controls are in neutral or off or released position (including the electrical switch and the parking brake).
- Do not leave the key in the starter switch.
- Make sure that all hydraulic piston rods are fully withdrawn.
- Fill up the fuel tank to maximum level.
- Remove battery, clean battery top and coat terminal clamps and leads with Vaseline, subsequently store the battery in dim and ventilated premises with temperature remaining above 10℃.
- Put stands or other supports under the front wheel drive axle and rear axle in order to

bear the tractor weight. With the tractor being propped up, it is advisable to deflate tires.

- Cover the tractor with non-waterproof canvas.
- Drain away thoroughly the water in radiator for passing away the winter season.

Chapter Ⅶ Troubles and Trouble-Shooting

7.1 Engine

7.1.1 Diesel engine fails to start

a. Breakdowns of fuel system

Possible causes	Fixing methods
a. No fuel in fuel tank	Add fuel
b. Air in fuel system	Bleed air, find out the reason and fix it up
c. Blockage of fuel system	Replace the fuel filter element with new one and check the fuel delivery pipe
d. Plunger and barrel of injiection pump worn-out	Replace with a new one
e. Seizing of injector or bad atomization	Replace with a new one or grind it

b. Insufficient compression pressure

Possible causes	Fixing methods
a. Insufficient valve clearance or maladjustment of the decompression screw	Adjust as per regulations
b. Leakage of valve	Replace with new one or grind it
c. Leakage of cylinder head gasket	Replace with a new gasket and fasten cylinder head nuts according to regulations
d. Wear and tear, sticking or gap lapping of piston rings	Replace the damaged ones, clean the sticking ones or reassemble them

c. Other causes

Possible causes	Fixing methods
a. Incorrect advance angle of fuel and valve timing after reassembling	Readjust them
b. Low ambient temperature	Use electrothermic plug or fill hot water into the radiator for preheating
c. Wrong lube oil	Use the engine lube oil as regulated
d. Water being in cylinder	Check and fix break downs

7.1.2 Non oil pressure or abnormal oil pressure

a. Not or too low the oil pressure

Possible causes	Fixing methods
a. Too low the oil level	Replenish
b. Oil suction pipe NOT submerged in lube oil so air comes in the pipe	Reassemble and check whether it is broken
c. Paper gasket of oil filter is assembled in a reversed way or broken	Reassemble or replace it
d. Spring of the pressure regulator valve of oil filter is out of shape or broken	Replace it
e. Wear and tear of oil pump	Replace it or reduce its paper gasket
f. Too much the clearance of bearing fittings	Check and replace them if necessary

b. Overpressure of lube oil

Possible causes	Fixing methods

a. Pressure regulator valve of filter is out of order	Check and adjust it
b. Oil becomes too thick at low temperature	Replace it with the lube oil of designated category

c. No lube oil on the rocker shaft

Possible causes	Fixing methods
a. Too low the oil pressure	Make adjustment
b. Blockage being somewhere in lubricating system	Find out and fix it

7.1.3 Smoking of the exhaust

Normally, poor atomization and combustion causes black smoke. If diesel drops are unable to burn or some water comes into cylinder, then the white smoke will be resulted. Burning of lube oil scurrying above the piston will produce blue smoke.

a. Black Smoke

Possible causes	Fixing methods
a. Sluggishness of nozzle valve	Replace or grind it
b. Overloading	Adjust the load
c. Wrong advance angle of fuel	Adjust it
d. Poor sealing of valves or incorrect valve timing	Check and adjust it
e. Too much unevenness of the diesel distribution among cylinders	Check fuel injection of every cylinder on injection pump test bed and make adjustment
f. Blockage of air filter	Blow or brush it clean
g. Wearing of cylinder liner and piston rings	Replace them with new ones

b. White smoke

Possible causes	Fixing methods
a. Too low the injection pressure results poor in atomization with oil drops	Check, adjust or replace the injection pump
b. Too low the temperature of cooling water	Cover the radiator with a cotton pad
c. Water being in cylinders	Check cylinder head gasket and cylinder head, replace the damaged parts with new ones

c. Blue smoke

Possible causes	Fixing methods
a. The 3rd ring is fitted upside down	Refit it, with the ring face marked "上(up)" upward
b. Wearing of piston rings and valve guides	Replace them with new ones
c. Too much high the lube oil level	Make it down by draining

7.1.4 Insufficient power developing

Generally, the insufficient supply of oil, air leakage and abnormal combustion will result in such trouble.

Possible causes	Fixing methods
a. Blockage of diesel filter	Clean it and replace filter element if necessary
b. Poor atomization of nozzle	Grind or replace it
c. Wearing of plunger and barrel of injection pump	Replace with a new one
d. Deformation of governor spring, resulting in low rotating speed	Adjust it or replace with a new spring
e. Incorrect advance angle of fuel	Adjust
f. Blockage of air filter	Clean it or replace it if necessary
g. Air leakage of intake and exhaust valves	Check valve clearance and sealing effectiveness
h. Incorrect valve timing	Check and adjust, or replace cam shaft if necessary
i. Insufficient compression pressure	Replace cylinder liner or piston rings

7.1.5 Abnormal sound

Possible causes	Fixing methods
a. Too much big the advance angle of fuel	Adjust it
b. Needle valve of injector seized	Loosen the high-pressure oil pipe in turn to detect the seized needle valve according to injecting sound (if any one is seized, then it will not give out injection sound), replace the seized one with a new one
c. Valve clearance is too big, rhythmic valve hammering can be heard clearly	Adjust it
d. Piston touches valves	Valve sinkage is not enough, reamer the valve seat again
e. Piston knocks the bottom of cylinder head	Replace the cylinder head gasket with a thicker one
f. Valve spring is broken	Replace the broken one with a new one Check and replace the failure parts
g. Connecting rod bearing or the small end bush is too loose	Replace with a new piston or a cylinder liner
h. Too much clearance between piston and cylinder liner	

7.1.6 Serious vibration

Normally, it is caused by uneven working of cylinders, or by incorrect assembling.

Possible causes	Fixing methods
a. The difference of compression ratio and fuel distribution among cylinders is considerable	Check and make adjustment
b. Air being in fuel pipes	Bleed air
c. Diesel engine is wrongly aligned in mounting, or fixing bolts are somewhat loose.	Align the engine and fasten the fixing bolts again
d. Piston knocking makes engine rough working	Check nozzle of injector and advance angle of fuel, make necessary adjustment

7.1.7 Engine overheat

Possible causes	Fixing methods
a. Air leakage of piston rings	Replace with new rings
b. Water coming into engine oil, oil diluted and deteriorated, or too much high or low the oil level.	Check and replace the engine oil or adjust the oil level by making drainage or replenishment
c. Too much tight the bearing fitting	Check and adjust
d. Water pump is broken or its belt is too much loose, resulting in water overheating	Check and adjust
e. Temperature regulator is out of work, or insufficient water in tank	Check and adjust the regulator or replenish water
f. Cylinder head gasket is broken	Replace it with a new one
g. Too much scale in water jacket	Descale the water jacket
h. Injector being seized	Replace it with a new one
i. Engine overloaded	Adjust the load
j. Advance angle of fuel is too much	Adjust as per stipulation

7.1.8 Too much engine oil consumption

Possible causes	Fixing methods
a. Engine oil of wrong category being used	Use the oil as specified
b. Piston rings worn out	Replace them with new ones
c. Piston ring sticking, oil return hole in piston ring groove plugged up	Remove carbon deposit and clean the piston
d. Leakage of rear seal	Check, replace with new rear seal and its cover
e. Too much high the oil level	Make down the oil level by draining

7.1.9 Rising of lube oil level

Possible causes	Fixing methods
a. Water leakage from cylinder head gasket	Check and replace it
b. Water leakage from cylinder head or bowl-shaped plug hole in engine block	Repair with epoxy resin or replace with a new plug

7.1.10 Engine running-away

Possible causes	Fixing methods
a. Oil delivery control rod of injection pump seized at the maximum position	Check and repair it
7.1.7.1.1 Sliding disc sleeve of governor seized	Check and repair it
c. Adjusting rod of plunger broken or escaped from the fork	Check and repair it
d. Too much lube oil in injection pump	Drain out to the required level
e. Too much lube oil entering into cylinder	Check and fix it

7.1.11 Engine drifting

Possible causes	Fixing methods
a. Uneven diesel delivery to each cylinder, screw of fuel delivery adjusting fork loosened	Check and adjust it
b. Too much the clearance of fork-adjusting-arm and the sliding disc worn out	Replace them
c. Sleeve of sliding disc dragging	Use fine sand cloth to polish it or replace it
d. Too much the axial clearance of cam shaft	Adjust with copper shims
e. Air being in fuel pipes	Bleed air

7.1.12 Engine self-stalling

Possible causes	Fixing methods
a. Air being in fuel pipe or filter element blocked	Check, bleed air or replace the filter element
b. Seizing of piston	Check and replace it
c. Bearing bush burning-out	Check and replace it
d. Plunger or sliding disc sleeve of governor seized	Check, repair or replace them

7.2 Chassis

7.2.1 Clutch

Trouble & possible causes	Fixing methods
1. Clutch slip	
a. Friction disc stained with oil	Wash friction disc with gasoline and remove oil leakage
b. Pressing spring weakened or broken	Replace with a new one
c. Too less or even no pedal free travel	Readjust pedal free travel as specified
d. Driven disc warped, unevenly or excessively worn out	Rectify or replace with a new one

e. Ends of the three release levers not in the same plane	Adjust and make the release lever ends in the same plane
2. Clutch disengaged incompletely, resulting in difficult gear shifting or gear shifting with sound and tractor shaking while being driven away from rest.	
a. Excessive free travel of clutch pedal	Adjust the pedal free travel as specified
b. Driven disc excessively warped	Rectify or replace with a new one
c. Ends of the three release levers not in the same plane	Adjust the release levers
d. Friction disc broken	Replace with a new one
e. Too tight the friction disc spline	Shave the spline of friction disc
3. Vibration and noise in clutch	
a. Release lever pressure spring broken	Replace with a new spring
b. Release bearing Insufficiently lubricated or damaged	Lubricate it or replace with a new one
c. Splined hole of driven disc or clutch splined shaft worn out	Replace the worn out parts with new ones
d. Clutch front bearing damaged	Replace with a new one

7.2.2 Brake

Troubles & possible causes	Fixing methods
7.1.7.1.2 Ineffective brake	
a. Brake lining stained with lube oil	Wash brake lining with gasoline and remove oil leakage
b. Brake lining or brake drum worn out	Replace the worn out parts with new ones
c. Brake cam worn out excessively	Replace with a new brake cam
d. Excessive pedal free travel	Readjust pedal free travel
2. Brake bias	
a. RH and LH braking force different	Readjust the LH & RH pedal travel to make the braking force same
b. One brake shoe lining stained with oil	Wash the stained brake shoe lining clean and remove oil leakage
3. Brake disengages incompletely and gets overheated	
a. Brake shoe return spring weakened	Replace with new springs
b. Brake pedals unable to return	Check whether the pedal return spring is damaged, or operating shaft is seized and fix up the troubles
c. Too less the pedal free travel	Readjust the pedal free travel

7.2.3 Gearbox

Troubles & possible causes	Fixing methods
1. Abnormal sound in gearbox	

a. Gearbox bearings or needle rollers excessively worn out or damaged	Check and replace worn out bearings or needle rollers with new ones
b. Abnormal meshing of main drive gears	Examine gear meshing zone print and backlash, adjust them as per stipulations
c. Spline shafts and the splined hole of gears worn out	Replace worn out parts with new ones
2. Trip-over stop	
a. Shift fork excessively worn out or deformed	Replace with a new one
b. Fork shaft locking spring weakened	Replace with a new one
c. Tooth profile or spline excessively worn out	Replace worn out parts with new ones
3. Gearbox overheat	
a. Too less the clearance of bearing or gear backlash	Readjust
b. Insufficient or excessive lubrication oil	Add or drain off lubricating oil to the specified level
c. Lubricating oil deteriorated	Renew lubricating oil

7.2.4 Traveling and steering system

Troubles & possible causes	Fixing methods
1. Front-wheel wobble	
a. Excessive clearance of front wheel bearing or kingpin bush worn out excessively	Adjust bearing clearance or replace kingpin bush with a new one
b. Wrongly adjusted toe-in	Readjust toe-in
c. Ball pin or its seat worn out excessively	Replace ball pin or its seat with a new one
d. Pitman arm and ball pin fixing nut become loose	Check and tighten the nut
2. Premature wearing of front wheel tires	
a. Wrongly adjusted toe-in	Readjust toe-in
b. Front wheel pressure insufficient	Inflate tires to specified pressure

7.2.5 Full hydraulic steering gears

Troubles & possible causes	Fixing methods
1. Steering operation is heavy	
a. Insufficient oil delivery of hydraulic pump	Check the hydraulic pump and fix up the troubles if any
b. Air bulbs in the hydraulic system	Bleed air in the system, check the suction pipe and fix up the leakage if any
c. The oil viscosity is too much	Replace with the specified oil
d. Leakage in the cylinder	Replace O-ring seal
2. Oil leakage	
a. O-ring seals damaged	Replace with new ones
b. Bolts and nuts for copper coupling surfaces got loose	Tighten the bolts and nuts as required
c. Poor welding	Re-weld
3. Steering failure	
a. Mistaken mounting position of the rotor and follow-up shaft	Bring back to the dealer for repairing
b. Failure of the steel ball check valve in valve body	Bring back to the dealer for repairing
4. Fails to steer manually	Bring back to the dealer for repairing

7.2.6 Hydraulic system

Troubles & possible causes	Fixing methods
1. Insufficient lifting force or lift system not working	
a. Too low the oil level or improper hydraulic oil being used	Add or replace with proper oil to specified level
b. Oil strainer clogged	Wash the strainer
c. Air being sucked into hydraulic system	Bleed air in the system and tighten connector or replace seal ring
d. Oil pump seal ring seriously worn out and inner leaking seriously	Replace the oil pump seal ring
e. Main control valve seized	Operate lift control lever several times and shift the main control valve with a screw driver, if still seized, disassemble and wash it clean
f. Main control valve worn out seriously	Replace worn out parts
g. Safety valve failure	Readjust or repair safety valve
h. Cylinder leaking seriously	Replace seal ring or replace the worn out parts if necessary
i. Leakage at distributor seal rings	Replace seal rings
2. Implement not lowering	
a. Main control valve seized or the lock valve closed	Please fix up the problem by referring to “Point 1-e”, or screw up the locking valve to the highest position

7.3 Electrical system

7.3.1 Battery

Trouble & possible causes	Fixing methods
1. Electric power always insufficient	
a. Generator or regulator failure	Check wire connection and remove trouble
b. Poor wire connection	Check wire connection and remove trouble
2. Battery overheat	
Too high the charging electric current	Check and adjust regulator
3. PowerCheck is a white display	Replace with new battery
4.PowerCheck is a black display	Charge

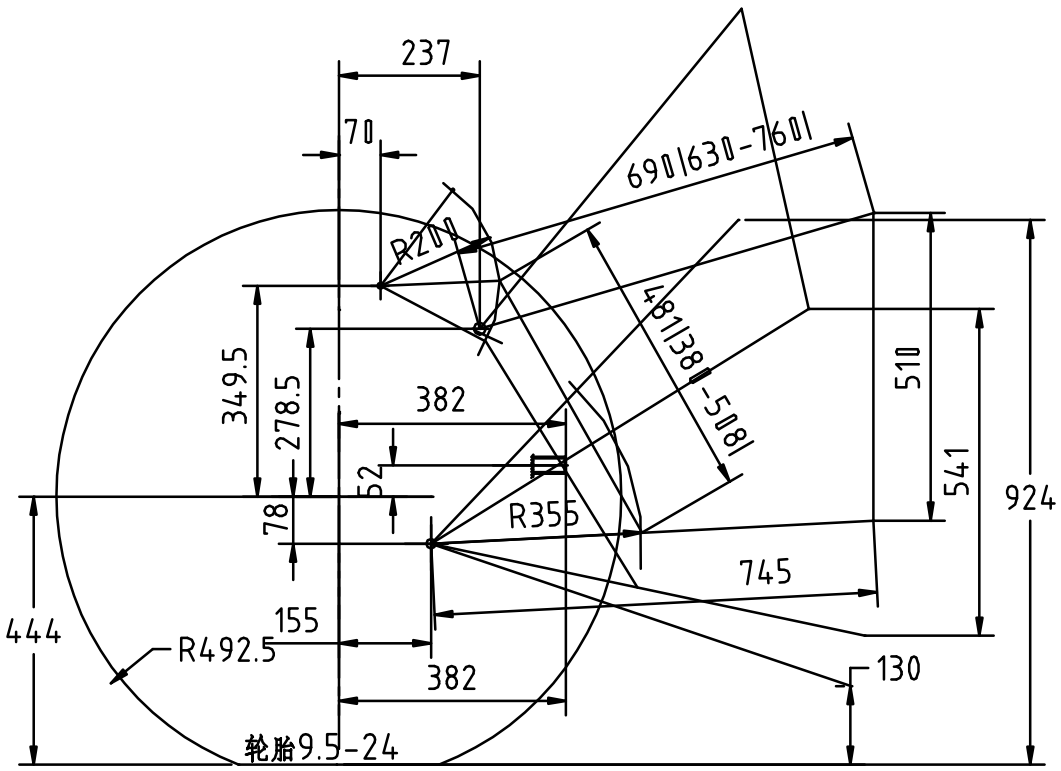
7.3.2 Generator

Troubles & possible causes	Fixing methods
1. Generator not working	
a. Rectifier damaged	Check and replace with a new one if necessary
b. Carbon brush seized and being contactless with collector ring	Examine carbon brush size and spring force, repair or replace whichever if necessary
c.Broken circuit, short circuit of stator or rotor windings, or poor insulation of earth circuit	Repair or replace with new ones
2. Generator developing insufficient power	
a. Generator belt loosened	Adjust belt tension or replace worn out belt with a new one
b. Rectifier damaged	Replace damaged rectifier with a new one
c. Poor contact of carbon brushes	Repair
d. Short circuit of partial windings of rotor or stator	Repair or replace rotor or stator windings with new ones
3. Generator output current unsteady	
a. Generator belt loosened	Adjust belt tension or replace the belt with a new one
b. Rotor and stator windings being nearly short circuited or broken	Repair or replace rotor or stator windings with new ones
c. Carbon brush spring weakened and poor contact of carbon brush	Repair or replace carbon brush spring with a new one
d. Terminals loosened	Check and repair
4. Abnormal sound from generator	
a. Generator wrongly mounted	Remount the generator correctly
b. Generator bearings damaged	Replace generator bearings with new ones
c. Rotor hitting stator or other parts	Check and repair

7.3.3 Starter

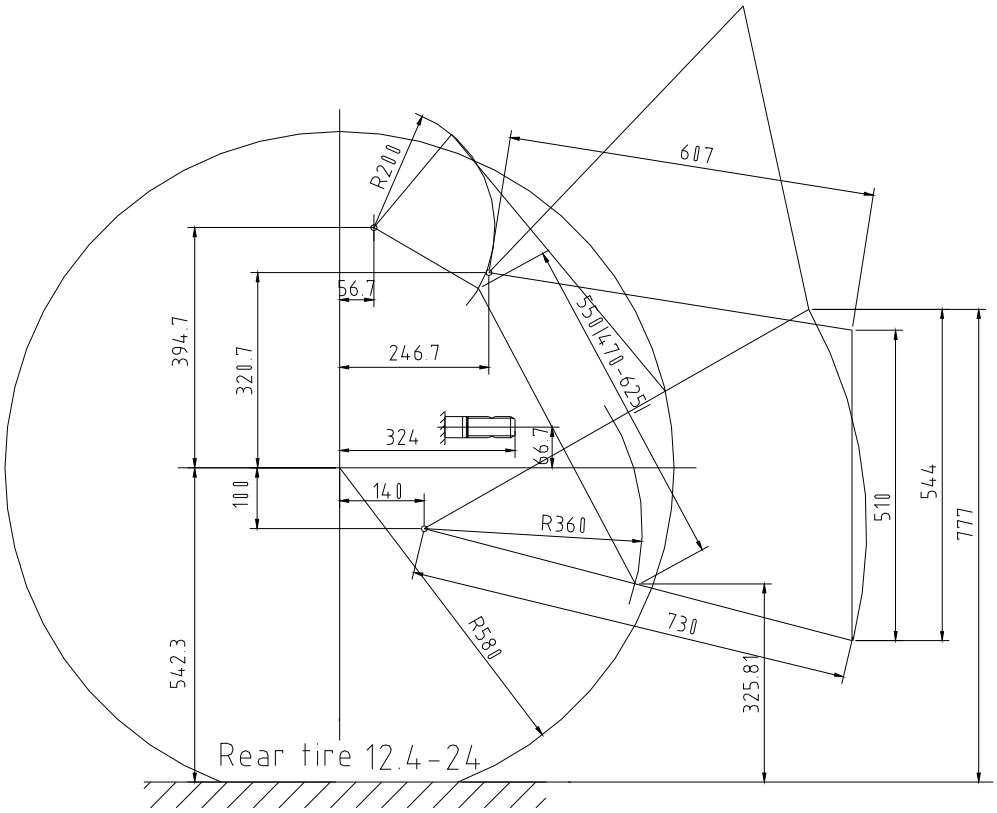
Troubles & possible causes	Fixing methods
1. Starter not working	
a. Connecting wire broken or poor contact of wire connection and switch contacts	Weld or replace with new connecting wire, clean the oil stain on contacts and tighten all the nuts on connecting points
b. Fuse blown	Replace with the fuse of specified current rating
c. Battery nearly exhausted	Charge battery
d. No contact of carbon brushes with the commutator	Check carbon brushes and adjust brush spring force to get good contact
e. Inner short circuit of starter	Remove short circuit
2. Starter running but unable to start the engine	
a. Shaft bushing excessively worn out, causing rotor ractioning with magnetic pole	Replace with a new shaft bushing
b.Poor contact of carbon brushes with commutator	Wash the commutator surface, shave the brush contacting surface and adjust spring force
c. Commutator surface burnt or with oil stain	Grind rough the commutator surface, remove oil stain from commutator surface
d. Welded joint between armature conductor and commutator broken	Re-weld
e. Poor connection of cable & clamp	Tighten clamping nuts to get good connection
f. Solenoid switch contacts ablated	Repair solenoid switch contacts
g. Battery insufficiently charged	Charge battery again
3.Starter running continuously after engine being started	
a. Solenoid switch contacts ablated	See 2-f
b. Incorrect adjustment of the iron core travel of solenoid switch	Readjust the travel
4. Starter begins to run and hits against the end face of ring gear before meshing.	
a. Too less the iron core travel of solenoid switch	Readjust the iron core travel of solenoid switch

Appendix 1. Moving Locus Diagram of Lifting Linkages（254G2-6/304G2-6）



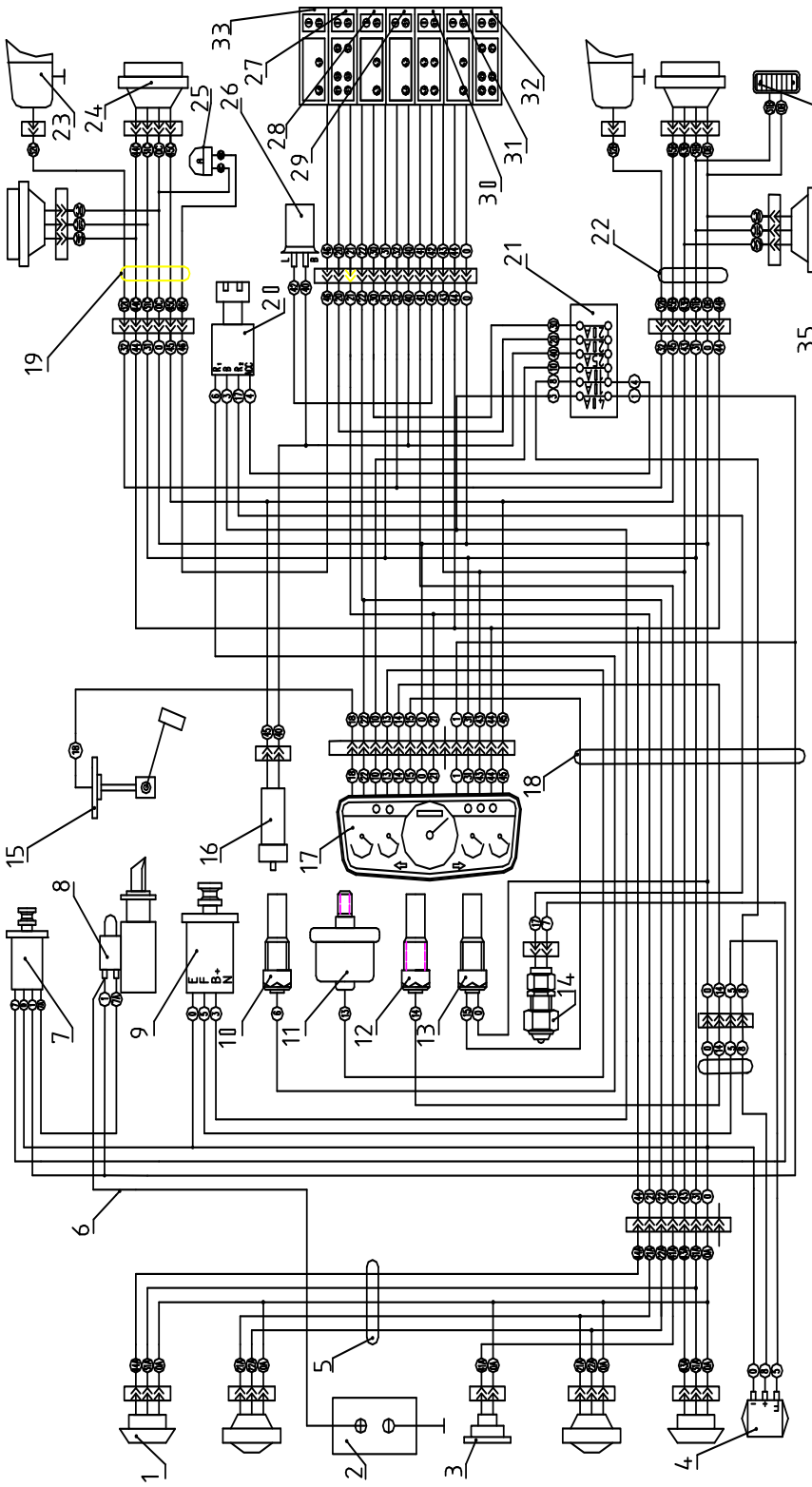
The lift members' parameters and motion parameters (mm)		
Seq. No.	Item	The lower link points
1	Length of lower link	745
2	End span of lower link	600
3	Height of farm implement's column (recommended)	510
4	Length adjusting range of lifting rod	380～508
5	Connecting position of lifting rod's lower end with lower link	355
6	The ground clearance under the hitch point (while the lower link is at its lowest position)	130
7	The ground clearance under the hitch point (while the length of lifting rod is adjusted to 411)	395
8	The power lifting range of lower link hitch point (while the length of lifting rod is adjusted to 411)	468
9	The ground clearance of hitch point for transportation (while the lifting rod is adjusted to its shortest length of 380)	924
10	Length adjusting range of upper link	630～760

Appendix 2. Moving Locus Diagram of lifting Linkages(354G2-6/404G2-6)



The lift members' parameters and motion parameters (mm)			
Seq. No.	**Item**	**The lower link points**	
1	Length of lower link	730	
2	End span of lower link	600	
3	Height of farm implement's column (recommended)	510	
4	Length adjusting range of lifting rod	470 ～625	
5	Connecting position of lifting rod's lower end with lower link	355	
6	The ground clearance under the hitch point (while the lower link is at its lowest position)	200	
7	The ground clearance under the hitch point (while the length of lifting rod is adjusted to 550)	412	
8	The power lifting range of lower link hitch point (while the length of lifting rod is adjusted to 550)	544	
9	The ground clearance of hitch point for transportation (while the lifting rod is adjusted to its shortest length of 470)	777	
10	Length adjusting range of upper link	540	740

Appendix3. Diagram of Electrical System Principle



1. Headlight 2. Battery 3.Electric horn 4. Voltage regulator 5. Front harness 6.Battery positive pole cable7. Starter relay 8. Starter motor 9. Generator
9. Generator 10. Electrothermic plug 11. Oil pressure sensor 12. Water temperature sensor 13.tachometer 14.Starter safety switch 15. Oil gauge sensor
16. Braking lamp switch 17.Combination meter 18. Tachometer 19. Right fender harness 20. Electric buttonhole 21. Fuse block 22. Left fender harness
23. Rear working lamp 24. Combined rear lamp 25.Caution light 26. Flasher 27. Rear working lamp switch 28. Left turning indicator switch 29. Right turning indicator
switch 30.Parking flasher light switch 31. Horn button 32. Headlight switch 33.Slow Caution light 34.license plate light 35. Turning indicator switch

Appendix 4. List of Rubber Oil-seal and O-ring seal

Seq. No.	Standard codes No.	Designation and specifications	Quantity	Location
1	GB13871-92	Cased rubber oil seal FB 40×62×8	1	PTO shaft
2	HG4-692-67	Cased rubber oil seal W 50×72×7	4	4 in Front wheel drive-axle
3	HG4-692-67	Cased rubber oil seal PD 50×72×12	4	4 in Front wheel drive axle
4	HG4-692-67	Cased rubber oil seal PD 50×70×12	2	Final drive
5	HG4-692-67	Cased rubber oil seal SD 60×90×12	4	Final drive
6	HG4-692-67	Cased rubber oil seal PG 25×42×10	3	2 in transfer case 1 in drive shaft
7	HG4-692-67	Cased rubber oil seal SD 35×56×12	3	2 in gearbox 1 in front wheel drive axle
8	HG4-692-67	Cased rubber oil seal SD 32×52×12	2	Brake
9	JB2600-80	Cased rubber oil seal SG 35×55×10	1	Gearbox
10	GB 3452.1-92	O-ring seal 10.6×1.8	1	Hydraulic lift
11	GB 3452.1-92	O-ring seal 10.6×2.65	3	1 in hydraulic lift 1 on PTO shaft 1 Gearbox
	GB 3452.1-92	O-ring seal 11.2×2.65	1	Gearbox
12	GB 3452.1-92	O-ring seal 6.3×1.8	2	Hydraulic lift
13	GB 3452.1-92	O-ring seal 15×2.65	9	2 in Rear axle 2 in Hydraulic lift 2 in Brake 3 Gearbox
14	GB 3452.1-92	O-ring seal 18×2.65	2	1 inOil filter 1 in oil pump
15	GB 3452.1-92	O-ring seal 19×2.65	4	Brake
16	GB 3452.1-92	O-ring seal 25×2.65	1	Gearbox
17	GB 3452.1-92	O-ring seal 26.5×2.65	2	Final drive
18	GB 3452.1-92	O-ring seal 30×2.65	1	1 on PTO shaft
19	GB 3452.1-92	O-ring seal 33.5×3.55	1	Rear axle
20	GB 3452.1-92	O-ring seal 38.7×5.3	2	Hydraulic lift
21	GB 3452.1-92	O-ring seal 53×2.65	2	1 in Oil filter 1 in Oil pump
22	GB 3452.1-92	O-ring seal 48.7×3.55	3	1 Front wheel drive axle 2 1 in drive shaft
23	GB 3452.1-92	O-ring seal 87.5×3.55	1	Hydraulic lift
24	GB 3452.1-92	O-ring seal 103×3.55	2	Final drive
25	GB 3452.1-92	O-ring seal 34.5×2.65	2	Front wheel drive axle
26	GB 3452.1-92	O-ring seal 65×2.65	1	Front wheel drive axle
27	GB 3452.1-92	O-ring seal 69×2.65	1	Front wheel drive axle

28	GB 3452.1-92	O-ring seal 73×3.55	2	1 Front wheel drive axle 1 Gearbox
29	GB 3452.1-92	O-ring seal 56×2.65	2	Front wheel drive axle
30	GB 3452.1-92	O-ring seal 69×3.55	2	Front wheel drive axle Hydraulic lift
31	GB 3452.1-92	O-ring seal 23.6×2.65	1	Front wheel drive axle
32	GB 3452.1-92	O-ring seal 80×2.65	2	1 in front wheel drive axle 1 on PTO shaft
33	GB 3452.1-92	O-ring seal 85×2.65	3	Front wheel drive axle
34	GB 3452.1-92	O-ring seal 160×3.55	2	Front wheel drive axle
36	GB 3452.1-92	O-ring seal 15×2.65	1	Transfer case
37	GB 3452.1-92	O-ring seal 45×3.55	1	Transfer case

Appendix 5. List of Bearings

Seq. No.	Standard code No.	Designation and specifications	Quantity	Location
1		Releasing bearing 65TNK20	1	Clutch (release bearing assembly)
2	GB/T276-1994	Antifriction bearing 6106	1	Gearbox
3	GB/T276-1994	Antifriction bearing 6208	6	4 in gearbox 2 in front wheel drive axle
4	GB/T276-1994	Antifriction bearing 6207	3	1 in PTO shaft 2 in front wheel drive axle
5	GB/T276-1994	Antifriction bearing 6209	3	2 in Front wheel drive axle 1 in PTO shaft
6	GB/T276-1994	Antifriction bearing 6305	3	1 in gearbox, 2 in front wheel drive axl
7	GB/T276-1994	Antifriction bearing 6307	2	gearbox,
8	GB/T276-1994	Antifriction bearing 6307N	1	Gearbox
9	GB/T309-2000	Needle 2.5×19.8	28+34	28 in gearbox 34 in PTO shaft
10	GB/T5801-1994	Needle 6254905	1	Gear box
11	GB/T297-1994	Antifriction bearing 32207	1	Rear axle
12	GB/T297-1994	Antifriction bearing 31307	1	Rear axle
13	GB/T297-1994	Antifriction bearing 32011	2	Rear axle
14	GB/T297-1994	Antifriction bearing 30211	2	Final drive
15	GB/T297-1994	Antifriction bearing 32014	2	Final drive
16	GB/T276-1994	Antifriction bearing 6206	1	1 on PTO shaft
17	GB/T276-1994	Antifriction bearing 6307	2	Final drive
18	GB/T301-1995	Antifriction bearing 51106	2	Front wheel drive axle
19	GB/T297-1994	Antifriction bearing 31306	1	Front wheel drive axle
20	GB/T297-1994	Antifriction bearing 32006	1	Front wheel drive axle
21	GB/T276-1994	Antifriction bearing 60205	1	Drive shaft
22	GB/T276-1994	Antifriction bearing 6305N	2	Transfer case
23	GB/T276-1994	Antifriction bearing 6205	1	Transfer case
24	GB/T276-1994	Antifriction bearing 6304	1	Transfer case
25	GB/T5801-1994	Needle bearing 4524906	2	Transfer case
26	GB/T276-1994	Antifriction bearing 6111	2	Front wheel drive axle
27	GB/T309-2000	Needle 3×23.8	78	PTO shaft
28	GB/T276-1994	Antifriction bearing 6108	1	PTO shaft
29	GB/T5846-1986	K223020	1	PTO shaft

Appendix 6. Tightening Torque Table of Main Bolts and Nuts

Seq. No.	Location/Designation	Specifications	Tightening torque (N. m)	Intensity grade
1	Cylinder head / studs & nuts	M12	118～137	8.8
2	Connecting rod / bolts	M10×1	56～69	8.8
3	Main bearing / studs	M10	115～125	8.8
4	Flywheel / bolts	M12	98～118	8.8
5	Differential gear / bolts	M10	40～50	8.8
6	Distributor / fixing bolts	M8	15～20	8.8
7	Rear-axle shaft housing and rear axle case / connecting bolts	M12	70～80	8.8
8	Main drive gear bearing seat and rear-axle case / connecting bolts	M12	60～70	8.8

Appendix 7. Optional Accessories

(to be supplied against particular orders)

Seq. No.	Accessory	Quantity	Application
1	12.5/80-18 Rearballast / bolts	4/6	Increase adhesive force
2	Safety frame	1	Safeguard the operator
3	Rearballast / bolts	4/6	
4	Sunshade	1	Safeguard the operator from the sunshine and rain

Appendix 8. List of Attached Tools

Seq. No.	Standard Code	Designation and specifications	Quantity	Remarks
1	GB3390.1-89	Socket head S=13	1	
2	GB3390.1-89	Socket head S=16	1	
3	GB3390.1-89	Socket head S=18	1	
4	GB3390.1-89	Socket head S=24	1	
5	GB3390.2-89	Square drive S=12.5	1	
6	GB3390.2-89	Tommy bar L=300	1	
7	GB3390.2-89	Square drive with extension bar S = 12.5 × 12.5 L = 130	1	
8	GB3390.2-89	Open-end spanner 8×10	1	
9	GB4440-94	Adjustable spanner 250 mm (10″)	1	
10	GB4593-85	Gas pliers 150 mm (6″)	1	
11	GB5356-86	Hexagonal key spanner 6	1	
12		Grease gun	1	
13		Jack	1	Optional
14		Oil gun	1	Optional
15		Tyre pressure gauge	1	Optional

Appendix 9. Packing List

Seq. No.	Designation and specifications	Quantity	Remarks
1	DF Brand tractor	1	To be disposed as per order
2	Spare parts & tool kit of the engine	1	
3	Attached tool kit of the tractor	1	
4	Operation manual of the tractor	1	
5	Illustrated parts catalogue of the tractor	1	
6	Certificate of quality	1	

The information contained in this operation manual is of a general introduction only, which is subject to change without notice at any time for technical or other reasons since our product will be under uninterrupted improvements and modifications. Therefore, we would request the users/dealers to give out the manufacturing date and serial No. while they place order for spare parts and components.

Thanks.

PRE–DELIVERY SERVICE

INOPERATIVE SERVICE CHECKS:

1. Tyre pressures and condition ☐
2. Lift–rod levelling crank for proper operation ☐
3. Radiator coolant level and specific gravity (1.071–1.083 at 16^0 C (60^0 F) ☐
4. Poly V belt ☐
5. Engine oil level ☐
6. Transmission/rear axle oil level ☐
7. Front axle differential oil level (4wd) ☐
8. Front axle hub oil level (4wd) ☐
9. Brake adjustment and pedal equalisation ☐
10. Upper link, drawbar and pin in position ☐
11. Wheel–to–rim clamp bolts and lock nuts for tightness ☐
12. Wheel disc–to–hub nuts for tightness ☐
13. Front end weight clamp bolts for tightness ☐
14. Front axle support bolts for tightness ☐
15. Front wheel toe–in (4wd) ☐
16. Fuel level ☐
17. Sheet metal and paint condition ☐
18. Drain diesel fuel filter and water separator ☐
19. Lubricate all grease fittings ☐
20. Air cleaner element and hose connections ☐
21. Seat mounting and adjustment ☐
22. All electrical cables, terminals and wires ☐

SAFETY ITEMS CHECKS:

1. Seat belt installed (where applicable) ☐
2. Safety decals installed ☐
3. Neutral start switches operative ☐
4. Parking brake operation ☐
5. Flashing lights/tail lights operation ☐
6. Operator's Manual supplied ☐
7. P.T.O. guard installed ☐
8. S.M.V. emblem installed (where applicable) ☐

OPERATIVE SERVICE CHECKS:

All operative checks are to be performed with the tractor at normal operating temperature.

1. Lights and instruments for proper operation ☐
2. Fluid and oil leaks ☐
3. Maximum no–load speed and idle speed adjustments and fuel shut–off ☐
4. P.T.O. operation ☐
5. Hydraulic System:
   - Selector levers for Draft and Position Control operation ☐
   - Flow control operation ☐
   - Draft Control for tension and compression loads ☐
   - Auxiliary Services Control and remote control valves (if installed) ☐

PERFORMANCE SERVICE CHECKS:

1. Engine operation including throttle and governor operation ☐
2. Transmission, including clutch ☐
3. Steering control ☐
4. Differential lock engagement and disengagement ☐
5. Brake action ☐
6. All optional equipment and accessories ☐

INSPECTION PERFORMED – WARRANTY EXPLAINED – INSTALLATION COMPLETED

TRACTOR MODEL NO. ..... **TRACTOR SERIAL NO.** .....

OWNER'S SIGNATURE **DATE** **DEALER'S SIGNATURE** **DATE**

for owner

PRE–DELIVERY SERVICE

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TRACTOR MODEL NO. ..... **TRACTOR SERIAL NO.** .....

OWNER'S SIGNATURE **DATE** **DEALER'S SIGNATURE** **DATE**

for dealer

PRE–DELIVERY SERVICE

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OWNER'S SIGNATURE **DATE** **DEALER'S SIGNATURE** **DATE**

for manufacturer